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Southern Voices on Climate Change

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COMMUNITY-BASED CLIMATE CHANGE INITIATIVES IN VIETNAM

Experiences of the members of the Climate Change Working Group (CCWG)

Hanoi, Vietnam November 2015

CCWG

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FOREWORD

2015 is a crucial year in global development; the sustainable development goals were agreed upon and a new and inclusive climate agreement will be reached. If the global lessons learned on responding to climate change and combating poverty and inequality would be applied, a new path for the wellbeing of people and the planet can be set.

And as 2015 draws to a close, two critical developments shape the face of Vietnam. One is the unprecedented reduction of poverty in the past decades. The other one is global warming, which poses risks to the health, homes, and livelihoods of millions of Vietnamese people, and could undo some of the development gains.

However, people are not affected uniformly by climate change, and they have different opportunities and capacities to take part in the development process. Inequalities and marginalization keep people from thriving as development aspirations and climate change vulnerability intersect. Vulnerable groups, such as poor and landless people, poor women, ethnic minorities, children, the elderly, and people with disabilities, are not benefiting to the same extent as others from economic growth. Their realities are shaped by poverty, unequal participation in decision making, and few options to adapt to climate change.

Against this backdrop, this report by the Climate Change Working Group wants to put a spotlight on those in Vietnam that are most affected and least equipped for dealing with climate change effects: vulnerable groups and their communities. This report shows a wide range of climate change response models that have been implemented by NGOs all over the country. It sends three powerful messages about how Vietnam's response to climate change can become more effective.

Firstly, the realities, concerns, interests, demands, and capacities of local communities and vulnerable people have to be recognized and taken into account in order to create sustainable solutions for climate resilient development. Secondly, approaches, methodologies, tools and models are already available, for scaling up and replication here and now; there is no need to reinvent the wheel. Thirdly, even the best NGO models cannot achieve national impact as they will always remain limited in scale and scope. Good practices and successful models have to be integrated into government programming to reduce the vulnerabilities to climate change and help mitigate emissions.

The Climate Change Working Group (CCWG) is an open network (under the auspices of the VUFO-NGO Resource Centre) of NGOs, institutions and individuals working on climate change in Vietnam that was set up in 2008. It has over 100 NGO members including 12 core member organisations, and more than 1,150 subscribers to its electronic mailing list. The CCWG aims to increase the resilience of poor people by promoting economically and environmentally sustainable and socially just responses to climate change.

ACKNOWLEDGEMENTS

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This report has been developed through a participatory approach, conducted under the CCWG. Representatives of the following organizations participated and contributed actively to this report: Malteser International, World Vision in Vietnam, COHED, ADC, CARE, Oxfam in Vietnam, AMDI, DWF, ISET, Plan International, Live & Learn, ICRAF, ADRA, SNV Vietnam, GreenID, SCODE, SRD as well as others CCWG members.

This publication is a joint initiative of the CCWG, with particular contributions from CARE International in Vietnam, Oxfam in Vietnam, SNV Vietnam, and Malteser International – four active core members of this network. It is also supported by the Integrated Coastal Management Program (ICMP), of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, on behalf of the German Federal Ministry of Economic Cooperation and Development (BMZ); and the Southern Voices on Adaptation – a coalition of climate networks and partners in the Global South, supported by a Consortium of Danish development NGOs and hosted by CARE Denmark.

Funding from the Australian Government Community Based Climate Change Action Grant programme also contributed to the production of this booklet. In Vietnam, six projects received a total of AUD $15 million between 2012-2015 to implement community-based climate adaptation and mitigation activities, helping vulnerable communities manage the impacts of climate change and reduce greenhouse gas emissions, contributing to poverty reduction and securing livelihoods. An important part of each project was knowledge management and advocacy activities– funding for this booklet contributes to these activities.

This report has been printed on paper made from trees from sustainably managed forests.

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ACRONYMS

ADB	Asian Development Bank
ADC	Agriculture and Forestry Research and Development Centre for Mountainous Regions
AF	Agroforestry
CBCCIs	Community Based Climate Change Initiatives
CBDRA	Community Based Disaster Risk Assessment
CBDRM	Community Based Disaster Risk Management
CBI	Community-based Insurance
CCFSC	Central Committee for Flood and Storm Control
CCCO	Climate Change Coordination Office
CCWG	Climate Change Working Group
CSOS	Civil Society Organisations
CVAC	Central Vietnam Architecture Consultancy
DICBDRM	Disability-inclusive Community-Based Disaster Risk Management
DMHCC	Department of Meteorology, Hydrology and Climate Change (MONRE)
DOC	Department of Construction
DOFA	Department of Foreign Affairs
DOLISA	Department of Labour, Invalids and Social Affairs
DONRE	Department of Natural Resource and Environment
DPI	Department of Planning and Investment
DPOS	Disabled People's Organisations
DPP	Department of Plant Protection (under MARD)
DRR	Disaster Risk Reduction
GHG	Greenhouse gas
GSO	General Statistics Office
IK	Indigenous knowledge
ICRAF	World Agroforestry Centre
IEC	Information Education Communication
IFAD	International Fund for Agricultural Development
ISET	Institute for Social and Environmental Transition
LEP	Local Energy Planning
MARD	Ministry of Agriculture and Rural Development
MCD	Centre for Marinelife Conservation and Community Development
M&E	Monitoring and Evaluation
MOC	Ministry of Construction
MOLISA	Ministry of Labour, Invalids and Social Affairs
MONRE	Ministry of Natural Resources and Environment
NGOS	Non-governmental organisations
ODA	Official development assistances
RO	Reverse osmosis (for water purification)
SCAF	Spatially Characterized Agroforestry Database
SEDP	Social-Economic Development Plan
SRI	System of Rice Intensification
TOT	Training of trainers
UNFCCC	United Nations Framework Convention on Climate Change
VNGO&CC	Vietnamese Non-Governmental Organizations and Climate Change
VARC	Vietnam Red Cross

SUMMARY OF "COMMUNITY-BASED CLIMATE CHANGE INITIATIVES IN VIETNAM"

Introduction

Non-governmental organisations (NGOs) in Vietnam are supporting communities all over the country in responding to climate change. They do so as it has become clear that many communities and social groups in Vietnam are strongly affected by climate change. Over the period 1994-2013, Vietnam ranked 7th globally according to the Long-Term Climate Risk Index (CRI), with 392 deaths and more than 1 percent in GDP losses per year due to climate related disasters. Hydro-meteorological observations and modelling of future climate show that Vietnam's deltas and coastal lowlands are affected by sea level rise, saline water intrusion, tropical storms and storm surges of sea water, as well as heat waves, drought and occasional forest fires. The mountainous regions suffer from increasingly excessive rainfall and associated flash floods and landslides, heat waves, drought and associated forest fires, as well as occasional cold spells. In addition, the forest sector in Vietnam is now a carbon sink; however, agriculture still makes up a significant share in national GHG emissions, and the bulk of present and especially future emissions are in the energy sector.

Many NGOs have started to address the vulnerabilities of people and communities exposed to climatic extremes as well as the effects of "slow onset" changes such as sea level rise. They assist local authorities, mass organisations and local civil society organisations to increase the resilience of vulnerable groups and communities to the effects of climate change. They also pursue climate resilient, sustainable livelihoods, which means, for example, that they introduce agricultural practices that are both adaptive to the effects of climate change and mitigate greenhouse gas (GHG) emissions.

The Climate Change Working Group (CCWG) is an open network of NGOs in Vietnam under the auspices of the VUFO-NGO Resource Centre, working on climate change. It was set up in 2008, has over 100 NGO members including 12 core member organisations, and more than 1,150 individuals subscribe to its electronic mailing list. The CCWG aims to reduce the vulnerability of poor people to the impacts of climate change through NGO coordination, advocacy and capacity building for environmentally and economically sustainable and socially just responses to climate change. It advocates for such improvements based on very considerable experiences with community-based climate change initiatives (CBCCIs), on a wide range of specific topics, on which it engages leaders at the local level. The CCWG, along with the network of Vietnamese Non-Governmental Organizations and Climate Change (VNGO&CC), has agreed memorandums of understanding on coordination and information sharing with two ministries, which enhances dialogue at the national level on disaster risk reduction (DRR), community-based climate change adaptation, and GHG emissions mitigation.

Sixteen Community-based Climate Change Initiatives (CBCCIs)

The report "Community-based Climate Change Initiatives in Vietnam" presents lessons for improved practice as well as recommendations for policy makers from best-practice community-based climate change initiatives (CBCCIs) in Vietnam. Sixteen CBCCIs in two thematic groups were documented, based on 25 NGO projects all over the country:

Climate change risks and community-based climate change adaptation initiatives:

1. Disability-inclusive community-based disaster risk management (DiCBDRM)
2. Improving resilience of workers to heat stress in Danang
3. The dynamics of climate change understanding: a case study from a coastal Mekong Delta community
4. Strong house, safe people, and community development
5. Urban climate resilient housing in Danang
6. Empowering vulnerable women, men and children in disaster risk reduction and climate change adaptation
7. Integrating disaster risk reduction and climate change adaptation into local level social economic development plans
8. Climate change seed grants for children and youth-led initiatives

These cases demonstrated, for example, the importance of development and application of participatory methodologies, guidelines for inclusion, and various documentation and communication methods for raising awareness of specific vulnerable groups, such as people with disabilities, workers, indigenous people, the poorest women, and young people. All those cases had clear capacity building components, and several trained (women-)trainers, for example, in the Participatory

Action-Oriented Training (PAOT) methodology. Several actively engaged the private sector and most worked with the local "mass organisations", as well local authorities. Some engaged successfully with planning processes at the commune, province and also national level, in order to improve the policy context of CBCCIs, and achieve replication through the allocation of public budget and adoption of guidelines.

Community-based agriculture, agroforestry, and sustainable energy initiatives:

1. Indigenous knowledge of ethnic minorities and climate change adaptation
2. Reconciling climate change mitigation, sustainable livelihoods and environmental resilience through agroforestry
3. Building coastal resilience: integrated community-based mangrove management, disaster risk reduction and climate change adaptation in Thanh Hoa province
4. Increased resilience to climate change of the coastal communities in major deltas
5. Applying the System of Rice Intensification (SRI) for climate change mitigation and adaptation
6. Agriculture-based livelihoods of the poor and climate change adaptation
7. Increasing small farmers' resilience through agricultural insurance
8. Local energy planning (LEP) – the key for mitigating climate change

These cases include a very wide variety of climate-resilient livelihood models, in particular agricultural and agroforestry practices, that diversify local produce and increase production, productivity, income and resilience of households. These models and practices are specific to certain regions of Vietnam. They often build on a mix of local, indigenous knowledge and experience, with innovations proposed based on scientific knowledge or experience from other regions. Examples include: strips of grass for livestock feed, combined with different fruit/timber/commercial tree species; integrated mangrove management; application of bio-fertilisers and limestone for growing rice and peanuts; "Que" worm raising as chicken feed; raising broiler chickens/ducks on biological pads; salt tolerant rice and other resilient crop varieties; System of Rice Intensification (SRI); drought tolerant water melons on fallow rice fields using agricultural mulch; peanut cultivation using straw as mulch; improved pig rearing combined with biogas production and vegetable production. In addition, NGOs have worked with the authorities and the private sector to test approaches to agricultural insurance, and to increase sustainable energy production and consumption.

Lessons and recommendations

The main lessons and conclusions arising from the CBCCIs in Vietnam are as follows:

a. Planning and formulation of CBCCIs must be bottom-up, participatory and integrated; include authorities and leaders; and combine local (indigenous) and scientific (external) knowledge.
b. Implementation of CBCCIs requires mobilization of households, women, men and children; and close engagement of local authorities and social (mass) organisations.
c. Motivation for GHG emissions mitigation comes from wider livelihood, health and other direct benefits for local people.
d. CBCCIs are informed by guidelines and other tools, and vice versa, CBCCIs also informed guidelines and manuals, some of which were adopted by provincial authorities (for instance). These reflect methodologies on, for example, gender mainstreaming and disability-inclusive disaster risk reduction, and should be incorporated in guidelines at the national level.
e. NGOs must produce evidence of success that is convincing, which becomes the main basis for convincing local authorities and policy makers to provide the means to scale up and replicate.
f. Attractive communication materials on local experiences are important for raising awareness of local people and officials.
g. Public media as well as social media are important for raising awareness of the public, local leaders and policy makers.
h. If and when local officials are involved in a CBCCI and know the merits well, they may become lead advocates to higher level policy makers / leaders.
i. For successful policy influencing, local communities and NGOs must have good relationships with higher level authorities, and understand how Government planning processes work.
j. Policy dialogues with high level national and provincial officials require good preparation, clear messages, and appropriate ways of communicating in order to be effective.

1. INTRODUCTION

Non-government organisations (NGOs) in Vietnam are supporting communities all over the country in responding to climate change. They do so because it has become clear that many communities and social groups in Vietnam are strongly affected by climate change.

All regions and many livelihoods, communities and sectors are affected by climate extremes such as typhoons, droughts and/or floods. The coastal lowlands are exposed to steadily increasing sea levels and saline water intrusion, and mountainous regions suffer from for example flash floods associated with extreme rainfall. Several areas are experiencing recurrent drought. Vietnam has observed such climatic changes over the past decades, and modelling studies demonstrate severe future climate change that will affect both rural and urban areas (Tran Thuc et al., 2015).

Over the 20-year period 1994-2013 Vietnam ranked 7th globally according to the Long-Term Climate Risk Index (CRI), with an annual average of 392 deaths and more than 1 percent in GDP losses due to climate related disasters (Kreft et al., 2015).

Vietnam has been comparatively quick in developing policies to respond to climate change and is receiving considerable assistance from international development partners and NGOs. This initially focused on learning about climate change effects and the formulation of adaptation policies and actions, with a particular stress on climate related risks in the Mekong Delta and the Central coastal region. More recent climate change policies demonstrate that the Government of Vietnam acknowledges the importance of mitigating greenhouse gas (GHG) emissions, especially because such actions can have additional economic, environmental and social benefits. The forest sector has started to act as a carbon sink; but agriculture still makes up a significant share in national GHG emissions; and the bulk of present and especially future emissions are in the energy sector (SR Vietnam, 2014b). The Intended Nationally Determined Contribution (INDC) of Vietnam, which was submitted to the secretariat of the UN Framework Convention on Climate Change (UNFCCC), includes targets that will be achieved with domestic means, such as: reduction of the GHG emissions by 8 percent, compared to business as usual (BAU) over the period 2021-2030; reduction of emission intensity per unit of GDP by 20 percent between 2010 and 2030; and forest cover increase to the level 45 percent of its land surface by 2030. The INDC also includes Vietnam's commitments to adaptation (Government of Vietnam, 2015).

Many non-governmental organisations (NGOs) have started to address the vulnerabilities of people and communities exposed to climatic extremes, as well as the effects of "slow onset" changes such as sea level rise. They assist local authorities, mass organisations such as the Vietnam Red Cross (VNRC) and the Women's Union, cooperatives and local civil society organisations (CSOs) to address climate vulnerabilities and exposure (Nguyen Thi Hien Thuan et al., 2015). They also work with researchers as well as provincial, city and also national authorities, for instance, on development and up-scaling of models such as the System of Rice Intensification (SRI) and agroforestry techniques, which help reduce climate vulnerabilities as well as GHG emissions. NGOs have also reflected on their achievements and have shared some lessons on good practice in community based climate change initiatives (CBCCIs) (see e.g.: SRD & CARE, NoDate; CARE, 2013; CARE, 2015).

Vietnam has been advised that "(…) tackling the problem effectively should provide an economic boost for the country. Raising community level awareness, while fostering local sources of knowledge and the people's capacity to engage with climate change and take actions at the community level will enhance their impact" (DARA & CVF, 2012; p.227).

This can only happen if there is a wide range of actions that increase people's resilience to climatic shocks and stresses, and actions that help reduce GHG emissions whilst supporting women, men, children, elderly and whole communities also in economic, social and other environmental ways. There is a need for a very strong policy framework that enables and helps those local actions.

The aim of this report is to present lessons for improved practice as well as recommendations for policy makers from best-practice community-based climate change initiatives (CBCCIs) in Vietnam.

These CBCCIs demonstrate the benefits of community involvement, highlighting capacities and contributions to socially and environmentally sound climate change response measures. They also demonstrate that the members of the Climate Change Working Group (CCWG) generate high-quality and pertinent input for climate change-related policy planning and implementation, of adaptation and also GHG mitigation measures.

The recommendations offered in this report include suggestions for an improved policy context that enable CBCCIs, targeting Vietnamese policy makers and leaders at the national and local levels as well as international development partners. The report will hopefully be useful for the media, international NGOs, Vietnamese NGOs and others too, and enhance awareness of the importance of CBCCIs in Vietnam and internationally.

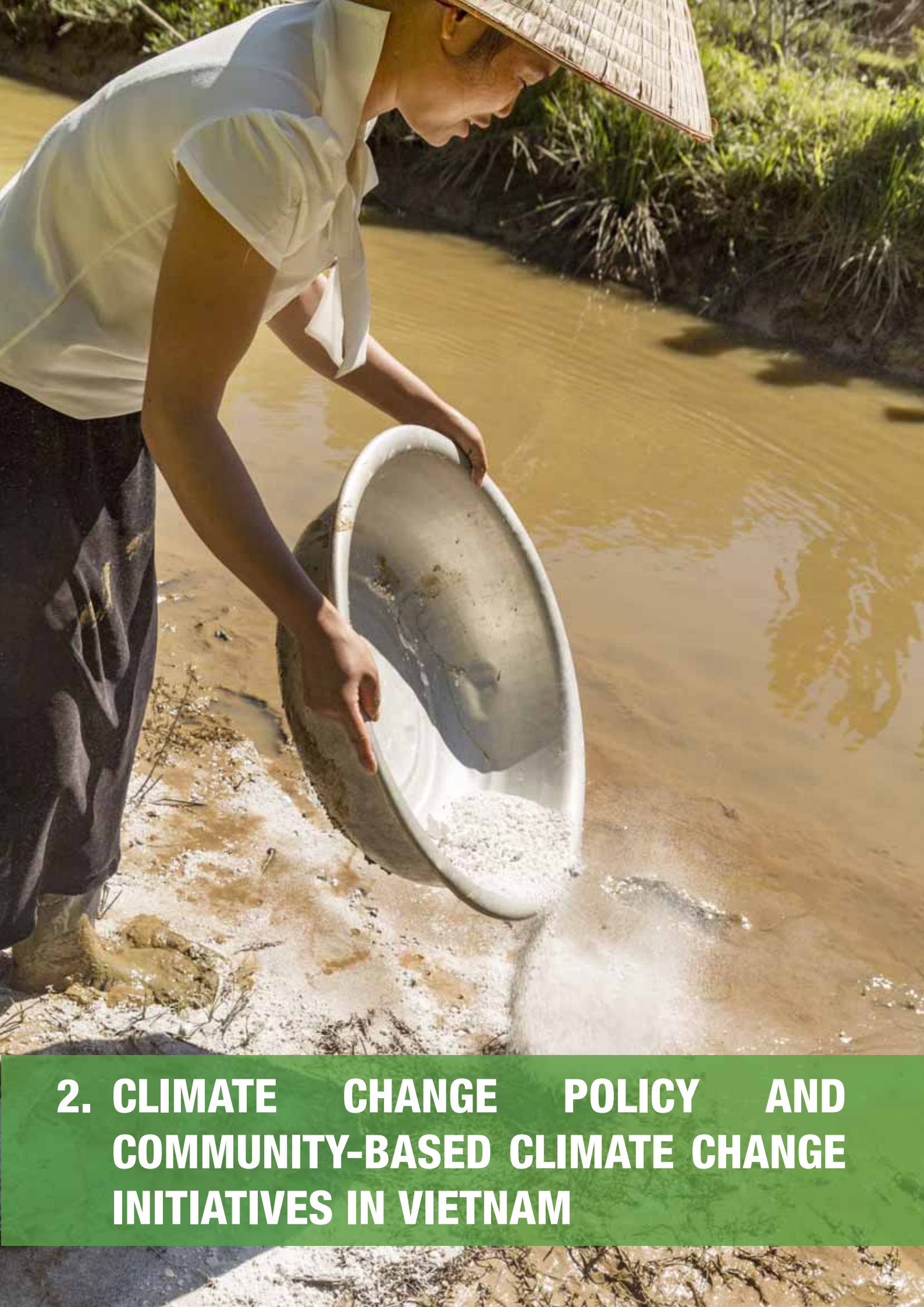
In the chapters 3 and 4 a total of sixteen CBCCIs are presented, based on about 25 community based projects across Vietnam.

The CBCCIs in Chapter 3 are about disaster risk management and climate change adaptation efforts that target specific social groups and/or specific policy makers. For example, it includes cases about engaging people with disabilities in disaster risk management, workers who often suffer from heat stress, children and young people whose creative energy is being stimulated to address climate change, and cases on storm and flood resistant housing for the most exposed and vulnerable households in the coastal region. It also includes a case that demonstrates the value of awareness raising, cases with experiences of empowering vulnerable social groups, and cases of engaging directly with provincial leaders and policy makers in order to achieve province-wide improved policy conditions for community based initiatives.

The CBCCIs in Chapter 4 focus on agriculture and agroforestry, and some address energy. Most cases lead to both increased resilience from climate change adaptation and help reduce greenhouse gas emissions when compared to traditional practices. They combine traditional local knowledge with external and scientific knowledge to formulate models that are jointly assessed and when successful they are replicated across communities and also province-wide. Some of the cases integrate different matters, especially by addressing energy needs for which local resources can be used.

Chapter 5 reflects on all those cases and discusses key lessons on practice as well as some recommendations on policies that would learn from the Climate change working groups's experiences and that could help improve the potential success of community-based climate change responses.

This report is the result of efforts by many NGO staff in Vietnam. A basic template and scoring sheets were developed based on some analytical frameworks (see chapter 2, Annex II and Annex III), which were discussed, agreed and applied by NGO staff. These staff then supplied documentation of their experiences in working with communities and (local, national) authorities, brainstormed and discussed lessons and recommendations, and they wrote various inputs that were put together by an external expert (ref Annex I on methodology).



2. CLIMATE CHANGE POLICY AND COMMUNITY-BASED CLIMATE CHANGE INITIATIVES IN VIETNAM

The Climate Change Working Group (CCWG) aims to reduce the vulnerability of poor people to the impacts of climate change, through NGO coordination, advocacy, and capacity building for environmentally and economically sustainable and socially just responses to climate change.

Members of the CCWG focus on direct support to local communities in order to reduce climate-related risks, and develop green and clean livelihoods, lifestyles and environments. CCWG members usually have the primary objective to assist the poor as well as under-privileged women and men, children, the elderly and/or ethnic minority groups, and most use participatory approaches to give voice to local women and men. The CCWG members also aim to share lessons and inform policies, to extend the effects and impacts of their efforts beyond the communities where they work directly, and to improve provincial and national policies and make those most conducive for success at the local level. This report presents many examples of their work, draws out lessons for improved practice, and provides recommendations for policy makers (see Chapter 1). It asked a number of questions of those cases, about climatic risk reduction, GHG emissions mitigation, and the policy relevance and impact of the CBCCIs.

Disaster risks can be understood as made up of three factors: *"Disaster risk derives from a combination of physical **hazards** and the **vulnerabilities of exposed** elements and will signify the potential for severe interruption of the normal functioning of the affected society once it materializes as disaster."* (Tran Thuc et al., 2015:37). **Exposure** refers to the presence of people, livelihoods, resources, social assets, etc., in places that could be adversely affected by physical hazards; and **vulnerability** is the propensity to be adversely affected, and depends on the capacity of a person or group to anticipate, cope with, resist, and recover from the adverse effects of physical events. (see Annex II for the analytical framework used in this report and the full definitions of these terms).

In addition, CARE has provided a definition of a **climate resilient livelihood:** *"a livelihood exposed to changing climate change shocks and stresses has the capacity to resist, absorb, accommodate to and recover from the effects of the shocks and stresses in a timely and efficient manner, including through the preservation, restoration and where possible, improvement of its essential basic structures and functions"* (CARE, 2013:6).

As global greenhouse gas emissions mitigation is failing to prevent climate change, the need for adaptation is becoming increasingly necessary. Adaptation to climate change and disaster risk reduction must reduce risks, which can only happen by reducing exposure and/or reducing vulnerabilities to the steadily worsening climate related hazards. Related questions asked for all the relevant CBCCIs are therefore as follows (compare also with the scoring sheets in Annex III):

a. **Were vulnerabilities reduced?** Of which social groups, communities, systems, infrastructure, etc., and in the context of which climate stresses and shocks? How many people had reduced vulnerabilities? Were the value of assets and economic activities protected or made less vulnerable?
b. **Was exposure reduced?** Exposure of who and/or what, to which climate-related stresses and shocks? How many people/communities? What were the benefit/cost ratios of adaptation measures?
c. **Which lessons were learned** about the implementation and effectiveness of the program of actions (approaches and methods) that led to reduced risks?

Comparatively poor and vulnerable people in developing countries cannot be asked to reduce GHG emissions per se, as they bear virtually no responsibility for global climate change; their GHG emissions mitigation actions may be globally important but the effects will not be locally noticeable. GHG emissions reduction must thus be a co-benefit from improved livelihoods and changed behaviours that are cost-free or have other local benefits. Sustainable livelihood outcomes include reduced vulnerabilities and also increased income, improved quality of natural resources and other livelihood assets. Gender relationships at the household and community levels determine both differentiated vulnerabilities of women and men and differentiated abilities to increase and sustain incomes and resources, depending on gendered entitlements, norms and behaviours (see Annex II.3). Along with increased income and improved assets, improvements in gender relations is thus also an important result. Such results must be achieved as part of efforts to reduce greenhouse gas emissions of comparatively poor people.

Related questions that were asked for the CBCCI cases that aimed to reduce GHG emissions with social, economic and environmental co-benefits were as follows (compare also with Annex III):

a. **Were greenhouse gas (GHG) emissions reduced,** and/or were carbon removals increased? And which was/were the main approach(es) to achieve that (in forestry, agriculture, non-agriculture livelihoods, manufacturing or repair units, homes, etc.)?
b. Apart from GHG emissions mitigation, which **other (livelihood) outcomes (co-benefits) of the targeted social groups,** communities were achieved (e.g. increased income, well-being, social/gender/ethnic/age equity, sustainability of natural resources, reduced vulnerability, etc.)? How many people had improved livelihood outcomes?
c. Were **local institutions and policy implementation strengthened** and did that improve social/power relations in the context of GHG emissions mitigation and/or climate change adaptation actions? For example, was women's entitlement to land, forest, or credit strengthened?
d. **Which lessons were learned** about the implementation and effectiveness of the programme of actions (approaches, methods) that led to reduced emissions and the various co-benefits?

The CCWG, along with the network of Vietnamese Non-Governmental Organizations and Climate Change (VNGO&CC), has agreed memorandums of understanding on coordination and information sharing with the Department of Meteorology, Hydrology and Climate Change acting for the Ministry of Natural Resources and Environment (2011), and with the Office of the Steering Committee for Climate Change Adaptation and Mitigation (OCCA) of the Ministry of Agriculture and Rural Development (MARD) (2015). This enhances dialogue with policy makers and provides opportunities for NGOs to share their very wide experiences in localities at the national level.

The CCWG believes that Vietnam's climate change policies are comprehensive, but that policy implementation and inclusiveness can be improved, particularly at the local level.

In addition, the CCWG identified: capacity gaps of officials working on climate change; a lack of interest in community-based adaptation even though many good models have been developed; and a lack of interest in gender responsive climate change adaptation (CCWG, NoDate).

The CCWG's advocacy aims are that Vietnam officially acknowledges the role of community based initiatives in planning and implementing climate change action plans, and that provinces integrate community based adaptation initiatives in their plans and provide budget resources for that.

This should be achieved through some changes in the formulation and/or implementation of general climate change policy (under the Ministry of Natural Resources and Environment, MONRE); green growth policy and social economic development planning (under the Ministry of Planning and Investment, MPI); and agriculture, forestry, the New Rural Areas program and other climate related policy under the Ministry of Agriculture and Rural Development (MARD).

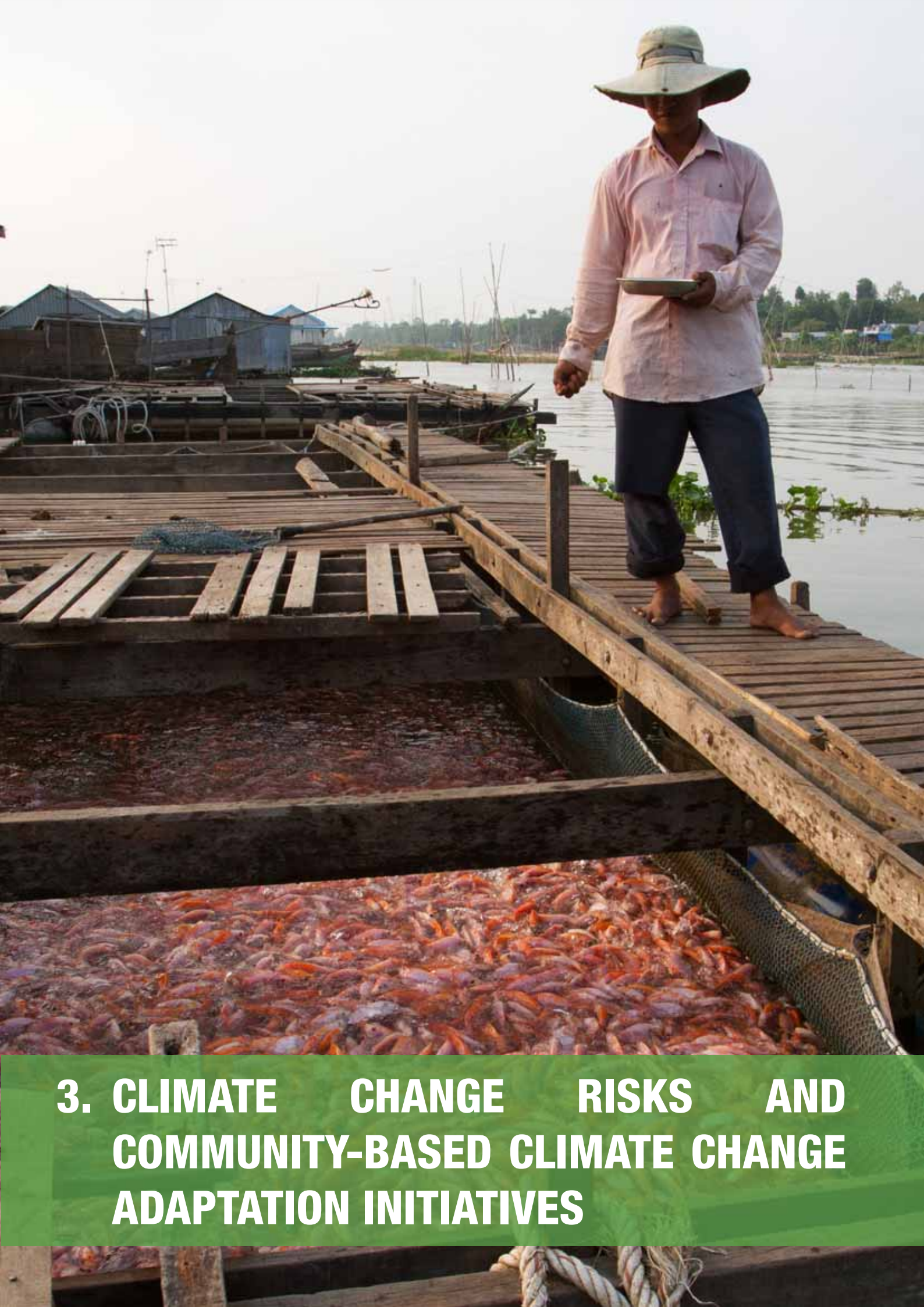
More specifically, CCWG members' initial policy recommendations at the national level are as follows (see also Annex II.4):

a. Place the well-being of the poorest and most vulnerable people at the core of any climate action.
b. Use participatory planning for building climate resilient communities.
c. Consult communities and include them in all stages of planning and implementation of climate change action plans.
d. Consult women at all stages of design and implementation of climate action.
e. Integrate, resource and implement community based initiatives in the most vulnerable provinces.
f. Access /allocate ODA for financial and technological assistance to build resilience of the most vulnerable populations.

The CCWG is calling on Parties to the UNFCCC to come to an ambitious and fair agreement in Paris, that limits the average global temperature rise to 1.5°c above pre-industrial levels and provides for funding for loss and damage, as well as a central role for equity.[1]

The CCWG use a number of approaches and tools to advocate such general recommendations as well as more specific, thematic suggestions, including the documentation and communication of successful experiences (both experiences on the ground and in terms of achieving changes in the local, national, and also international policy environment) that are more conducive to successful community based initiatives.

[1]http://www.ngocentre.org.vn/pub/ccwg-position-paper-cop-21



3. CLIMATE CHANGE RISKS AND COMMUNITY-BASED CLIMATE CHANGE ADAPTATION INITIATIVES

3.1 DISABILITY-INCLUSIVE COMMUNITY-BASED DISASTER RISK MANAGEMENT (DICBDRM)

According to the Vietnam Population and Housing Census of 2009, 7.8 percent of the population above five years of age is living with one or more disability in seeing, hearing, walking or cognition, using the International Classification of Functioning, Disability and Health (ICF) of the World Health Organization (WHO) (UNFPA, 2011: 11). Malteser International aims to ensure that disaster risk reduction is inclusive of the needs, rights and contributions of people with disabilities.

- Advocacy for the mainstreaming of disability in DRR policies
- Increasing the capacity of people with disabilities to engage in DRR decision-making

Quang Nam, Quang Tri, Quang Binh, Hue, Danang, Hanoi, Ho Chi Minh City

Climate-related disasters in Vietnam have caused major human losses and injuries, as well as damage to property and infrastructure. A recent report by the Central Committee for Flood and Storm Control (CCFSC) calculates a total loss, including shortfalls in rice and other agricultural products, of VND 153,352 billion (approximately USD 6.8 million) over the period 2000-2013 (Tran Thuc et al., 2015).

The Government launched the "Public Awareness Raising and Community-based Disaster Risk Management (2009-2020)" scheme, targeting the 6,000 communes in the country that are most vulnerable to disasters (SR Vietnam, 2009). One of the objectives is that 70 percent of the villagers living in disaster-prone areas must gain the necessary knowledge and skills on disaster risk reduction (DRR) by 2020, so that they can contribute to Community Based Disaster Risk Management (CBDRM) activities.

During disasters, people with disabilities are especially at risk, facing, for example, difficulties in accessing disaster information and a lack of adequate evacuation assistance. They are usually not involved in developing community based disaster risk management plans, and the current CBDRM models do not provide suitable and appropriate means to encourage the participation of persons with disabilities.

The Vietnamese government has committed to implement the Incheon Strategy to 'Make the rights real' for persons with disabilities in the Asia and Pacific region (UNESCAP, 2012). This includes the first regionally agreed disability-inclusive development goals which should be reached by 2020, including Goal 7 to ensure disability-inclusive disaster risk reduction. Moreover, the National Assembly has ratified the UN Convention for the Rights of Persons with Disabilities (UN, 2006) on 28 November 2014. Article 11 of this Convention indicates the need for disability-inclusive DRR. Despite those legal agreements, various barriers still hinder people with disabilities to be involved in DRR activities.

As a result of climate change, climate-related extremes such as floods and typhoons are expected to increase substantially in frequency and/or intensity, and sea level rise threatens people and their livelihoods along the 3,200 km long coastline. Due to the increase in intensity, the risks for populations such as people with disabilities increase as they are particularly vulnerable to climatic stresses and shocks. Adapting to climate change and coping with the quickly-changing and often unpredictable weather conditions is a particular challenge for them. Therefore, the success of DRR and climate change adaptation measures – improving **resilience for all** – crucially depends on people with disabilities' ownership and inclusion.

Member of Hanoi Deaf Group presents video on CBDRM for the Deaf in 6th AMCDRR, Bangkok, Thailand, 2014

7.8 per cent of the population above 5 years of age is living with one or more disability in seeing, hearing, walking or cognition, using the International Classification of Functioning, Disability and Health (ICF) of the World Health Organization (WHO) (UNFPA, 2011: 11). Vietnam Population and Housing Census of 2009.

People with Disabilities participate in CBDRM planning, Dien Minh commune, Quang Nam province, November 2013

People with disabilities do not usually get involved actively and effectively in CBDRM planning.

The Committees for Flood and Storm Control (CFSC) at different levels and the village Disaster Risk Management (DRM) Committees consider them as victims who need special assistance in disasters rather than actors who can meaningfully contribute to developing the CBDRM plans. Therefore, no representatives of people with disabilities are included in the CFSCs or village DRM committees and voices of people with disabilities are not heard. This has caused that many people with disabilities were not evacuated or were evacuated very late in case of a disaster.

In addition, the above-mentioned national CBDRM scheme has no specific activity focusing on people with disabilities. The CBDRM methodology which is applied in the communes by the national Disaster Management Center (DMC) does not include a suggestion on the inclusion of people with disabilities in the planning and decision-making process.

Malteser International aims to ensure that Disaster Risk Reduction (DRR) is inclusive of the needs, rights and contributions of people with disabilities.

A "twin-track" approach was applied to achieve this, advocating for the mainstreaming of disability in DRR activities and policies, while simultaneously increasing the capacities of people with disabilities in order to ensure their meaningful participation in DRR-related decision making processes. The main beneficiaries of the project are people with disabilities, the organizations working with and for them, as well as all other stakeholders working on disaster risk reduction. Malteser International cooperated closely with Disabled People's Organizations; the Disaster Management Centre; Committees for Flood and Storm Control and Disaster Risk Management Boards; the Women's Union; and Departments of the Ministry of Labour, Invalids and Social Affairs (DOLISAs) at different levels in seven provinces and cities (Quang Nam, Quang Tri, Quang Binh, Hue, Danang, Hanoi, and Ho Chi Minh City).

Malteser International developed and rolled-out a pilot model on Disability-inclusive Community-Based Disaster Risk Management (DiCBDRM) in 47 villages of six communes in three districts of Quang Nam province. This included many activities, such as:

- training of trainers (ToT) on DiCBDRM of core members with different disabilities of Disabled People's Organisations (DPOs);

- training on DiCBDRM of disability-change agents (who mobilize people with disabilities to participate in CBDRM activities and support them to raise their voices in village disaster risk management boards);
- training of people with disabilities and their families (to build capacity and confidence to participate in CBDRM activities);
- training of village Disaster Risk Management Boards (to be able to facilitate CBDRM planning in an inclusive and participatory manner);
- organizing community based disaster risk assessments (CBDRAs) for people with disabilities, their families and the whole village;
- establishing rescue teams, providing them with equipment, and training of village and commune rescue teams on disability-inclusive first-aid, rescue and evacuation skills;
- developing inclusive CBDRM plans based on the results of the CBDRAs provided by the villagers, and supporting legal approval of inclusive village and commune CBDRM plans;
- organize evacuation drills for at-risk villagers such as people with disabilities, practising early warning & evacuation assistance (and collecting opinions from at-risk people and from all villagers in order to make sure that the CBDRM plan is feasible);
- (re-)establishing village disaster risk management committees and commune Steering Committees for Disaster Prevention and Control with the participation of people with different disabilities.

In addition, trainings on DiCBDRM and advocacy skills were held with DPOs at different levels in Quang Nam, Quang Tri, and Quang Binh province, as well as Hanoi, Danang, Hue and Ho Chi Minh City to enable DPOs to advocate strongly and collectively. A supplementary DiCBDRM manual was developed (Malteser International, 2013a); a policy brief and a guideline published (Malteser International, 2013b, 2013c); and Education and Communication (IEC) materials for the Deaf and Blind were developed (Malteser International, 2013e and 2015), for use in the 6,000 selected communes targeted by the national CBDRM scheme. Malteser International and its partners also participated in numerous DRR/CBDRM meetings in Vietnam and internationally, to promote DiCBDRM.

The results are very encouraging. A comprehensive model of Disability-inclusive Community-Based Disaster Risk Management (DiCBDRM) was developed (Malteser International, 2013d, 2014a); a team of 16 core trainers on DiCBDRM from 3 regions of Vietnam was established; and the CBDRM plans of 47 villages and 1 commune included solutions to assist people with disabilities in disasters and were approved. People with disabilities have

Representative of children with disabilities advocating for DiDRR at global platform for DRR, Geneva, Switzerland, 2013

Members of Quang Nam DPO advocating for disability inclusion in the Global DRR strategy, Sendai, Japan, March 2015

changed their role in CBDRM activities in those pilot communities and have become more confident to advocate for DiCBDRM. Other people have realized that people with disabilities are not victims but important stakeholders who share and can take on responsibilities in developing DRR policies and practices (Malteser International, 2014b).

This initiative helped people with disabilities and also other at-risk groups, who were also encouraged to participate in CBDRM to minimize their vulnerabilities. The capacity of the full village disaster risk management committees was built on inclusive planning for CBDRM and response skills such as early warning, evacuation, and first-aid, which reduce exposure to climatic extremes and vulnerability. The initiative dramatically changed the social status of people with disabilities. Participating in the project was for many people with disabilities their first chance to be included in community activities, and as a result they feel more confident to participate in other social activities as well.

Many decision makers at different levels in Vietnam now recognize the important role of people with disabilities within CBDRM/DRR. Disability-inclusion was mentioned in the review of the national CBDRM scheme; and for example some roles people with disabilities in CBDRM planning, monitoring & evaluation and CBDRM training are included in the draft Circular for implementation of this national scheme (expected to be issued by MARD by the end of 2015). International NGOs and local organizations have started to implement DiCBDRM projects. And internationally, the Sendai Framework for Disaster Risk Reduction for the period 2015-2030 clearly mentions disability-inclusion in policy making process and practice (UN, 2015).

Evacuation of a person living with a disability - Dong Phuoc village, Dai Hong commune, Quang Nam province, February 2013

After completion of capacity building activities, the more confident DPOs advocated strongly to national decision makers to adopt the manual (Malteser International, 2013a) and use it for the implementation in the 6,000 communities. They also advocated mentioning disability inclusion in other DRR policies. The DPO network also sent their representatives to advocate at the global level, together with other members of the international Disability-Inclusive DRR Network (DiDRRN)[2], for disability inclusion within DRR policies and practices.

The twin track approach has proven to work.

Many concrete lessons were learned on how to encourage people with different types of disabilities to get involved in CBDRM activities and advocate for inclusion. This is documented in a comprehensive manual on disability-inclusive CBDRM (Malteser International, 2013a) which reflects the twin-track approach for DiCBDRM. Believing in the capacities of people with disabilities and applying suitable methods to work with them has led them to participate actively in the development of CBDRM plans. Removing barriers to people with disabilities in accessing CBDRM activities has ensured their effective participation. Building the capacities of people with disabilities and family members on DiCBDRM before inviting them to join community mainstreaming CBDRM activities has empowered people with disabilities who are now more confident to raise their voices during the meetings, and can meaningfully advocate for DiCBDRM with decision-makers. Raising awareness of stakeholders from both the DRR and disability sectors on disability-inclusion has contributed to the effectiveness of the advocacy efforts, as these actors understood the potential of people with disabilities and the importance of including them in the process. Training advocacy skills for DPO members has helped building their confidence and enabled them to effectively lobby decision makers on DiCBDRM.

[2] See www.didrrn.net

3.2 IMPROVING RESILIENCE OF WORKERS TO HEAT STRESS IN DANANG

Hot weather presents significant risks for health and productivity, especially for those workers working under direct sunlight. Low-income, informal and migrant workers are particularly at risk, as are workers in agriculture, fisheries and construction (Dao Thi et al., 2013; Opitz-Stapleton and Hawley, 2014). COHED has worked to protect the livelihoods and wellbeing of workers by generating new knowledge about the impacts of heat stress, building capacity and improving levels of health and safety in workplaces.

- Awareness-raising, information and preventative actions to increase the resilience of workers to heat stress.
- Contributing to national agenda on heat stress prevention.

The risk of heat stress is exacerbated by a lack of health insurance and social protection. Current labour laws do not provide adequate protection for workers (Opitz-Stapleton, 2014), and levels of knowledge and awareness of the risks of extreme heat are low (Dao Thi et al., 2013).

Nevertheless, temperatures are rising as a result of climate change, including maximum daily temperatures, and heat waves will occur more frequently. Vietnam has experienced an increase in average temperature of 0.4°C since 1960 and is expecting a further increase of 1-2°C by 2050. The number of heatwaves observed in Vietnam is rising nationwide, especially in the central region (IMHEN and UNDP, 2015). As a result, the risk of heat stress suffered by workers is increasing significantly.

Danang City is undergoing rapid urbanisation and population growth. When factoring in urban heat island effects, by 2050 the heat index during the day in Danang will continually average above 40 °C during May through to September (Opitz-Stapleton and Hawley, 2014). This has substantial implications for the health and wellbeing of workers and their productivity, and will cause economic losses at the family, enterprise, regional and national level. A recent report has estimated that Vietnam faces a loss of 85 billion USD in 2030 due to potential labour productivity loss as a result of increasing heat (Kjellstrom et al., 2014).

COHED's project in Danang aimed to help protect the livelihoods of low-income workers as temperatures increase, by providing information and raising awareness, and highlighting preventive actions to help increase the resilience of workers to heat stress.

The project expected to generate new knowledge, build capacities, and improve health and safety in workplaces. It hoped to enhance the knowledge of enterprise operators and management, as well as policy makers, on the future impacts of heat stress due to climate change; and contribute to a national agenda on heat stress prevention and workplace health and safety, with a focus on vulnerable workers.

The project targeted workers who work under direct sunlight or in hot conditions due to radiant heat from machinery, and who are doing heavy physical labour, in three enterprises:

1. Chemical Industrial Company Central Mine Central (MICCO), who operate a mine site just outside of Danang city;
2. Vietnam Construction and Import-Export Joint Stock Cooperation 25 (Vinaconex 25) currently managing a number of construction sites within Danang; and
3. Danang Steel Joint Stock Company and their workers at the steel production facility.

The project undertook many practical actions, including the following:

- **A daily morning broadcast** was established on one of the Vinaconex construction sites, to remind workers of the risks of heat stress, the signs and symptoms to be aware of and necessary preventive measures such as

keeping hydrated and taking breaks in shaded areas. Mr Pham Xuan Nam, Vice Manager of the Occupation Safety Department of Vinaconex 25 said of the program: "Every day at the beginning or end of the work shift, workers have free time to listen to the communication broadcast. Therefore, time after time, step by step, they will remember the content. In the future, our company will continue to carry out this activity but on a larger scale; this program will be applied to all of our construction sites."

- **Trainings for 960 workers** across the three participating enterprises were organised, to raise awareness of the causes and symptoms of heat stress, the effects on the health of workers, and heat stress prevention. These workshops were conducted together with the National Institute of Occupational and Environmental Health, the Ministry of Health, Danang Health Prevention Centre, and with the management of the participating enterprises.

- **A "keeping hydrated campaign"** to remind workers to keep well hydrated, including displays of posters with key messages about hydration in areas such as lunch rooms and bathrooms.

- Vinaconex and MICCO were assisted to establish **'communication corners'** with information on heat stress and heat stress first aid practice for workers, with videos, pictures and tape recordings that can be accessed by workers and are played during breaks. The information presented in these 'corners' is simple and easy to understand.

- Three **documents** were developed and shared widely: COHED's *"Guidelines: to raise knowledge and detail preventive measures of heat stress"* provides information and prevention methods for enterprises and their management to enhance the working environment. It provides a detailed overview of heat stress and health impacts; information on how to recognise and treat heat illness; and heat stress prevention measures including work practices as well as technical and engineering controls that could be adopted. The *"Standard Process of Workplace Heat Stress Prevention"* is a process document for organisations, outlining specific actions for workers, health and safety supervisors and enterprise management to prevent heat stress. Furthermore, ISET, in conjunction with COHED, developed the report *"Danang Vietnam: Climate Change Impacts on Heat Stress by 2050"* (Opitz-Stapleton, 2014) which has been submitted for review to the international journal Climate Services.

"The project is crucial because heat stress occurs in most enterprises. Enterprises are responsible for their workers. If they take responsibility, it will bring them both economic and social benefits." Ms Nguyen Thi Thuy Mai, Vice Director of the Danang Department of Industry and Trade (DOIT)

Training workshops highlighted some of the key sources of heat that can impact on workers

"This training course gave us the information on heat stress and ways to protect our health and our colleagues' health from heat stress at the workplace" (Training Participant).

Workers at Danang Steel Joint Stock Company study the heat index and heat illness information boards, Danang, 1 April 2015

The Director of MICCO recently wrote a letter, highlighting that "COHED has facilitated our staff in raising awareness and knowledge on heat stress in order to prevent and reduce the impacts of heat stress. The project implementation has been appreciated by all our workers because it has not only helped them to work more effectively but the results for our business have also been better".

Vinaconex 25 construction site workers stop to drink water and keep hydrated, Danang, 30 September 2014

- Three **policy advocacy workshops** were held by COHED with representatives from the Ministry and the Danang Department of Labour, Invalids and Social Affairs (MOLISA and DOLISA) as well as the Danang Health Prevention Centre, highlighting the importance and priority of this issue for enterprises, health authorities and labour safety authorities.

- **A heat stress index** was developed by COHED and ISET, and is part of heat monitoring systems introduced at the three enterprises. This monitoring tool, as well as an early warning system, helps to ensure that management and workers are prepared for particularly hot weather. Fifteen heat index and temperature monitoring boards were installed at the enterprises.

The great majority of trained workers said that the training helped them to understand what heat stress is and how to prevent the effects of heat stress on their health. The enterprise management teams received a heat stress warning system and information, and they adopted standard processes to help to reduce the incidence of heat stress within their workplaces.

The authorities, especially DOLISA and MOLISA have also supported the project and its outcomes. A Memorandum of Understanding was signed between COHED, the Danang DOLISA, Lien Chieu Vocational Training Centre, MICCO and the Danang Steel Joint Stock Company. This MOU signifies a commitment to apply the Standard Process of Workplace Heat Stress Prevention developed by COHED. This will become a core component of the regular labour safety training provided on an annual basis by these enterprises.

The Deputy Director General of the Bureau for Safe Work under MOLISA, Mr Nguyen Anh Tho, has been actively involved in the project from its commencement, providing key inputs into the Guidelines, Standard Process and training materials. At a policy workshop held in Danang in August 2015, Mr Nguyen committed to applying a pilot in other provinces in Central Vietnam including Ha Tinh and Quang Binh provinces, using COHED's training materials and standard process as a key component in the annual safety-at-work training courses. Commenting on the guidelines (COHED, 2014b), Mr Nguyen stressed that this "will contribute to strengthening the documentation and knowledge on occupational health and safety. It is also a useful reference for promoting and providing training in labour hygiene and health". The project has been timely, as a new Labour Safety Law will be brought into effect by the Vietnamese Government in 2016. This has provided impetus for building the knowledge of policy makers with regards to this pertinent issue.

Increasing awareness around heat stress and the implications for productivity and economic impacts is increasing and COHED has been instrumental in also building the awareness of this within Danang. Preliminary data and analysis shows there has been an increase in understanding about heat stress by the workers involved. This is particularly evident in terms of the importance of staying hydrated, with 68 percent of workers now drinking water every 20-30 minutes, an increase from 7.8 percent before the project was implemented. Mr. Do Ngoc Hue, Occupational Safety Manager of MICCO observed "workers did not drink water appropriately in the past, so they just drank when they felt thirsty. However, after being trained on heat stress prevention by COHED, workers now know how to drink appropriately and how much water they should drink".

While initial results such as these seem promising and the project has received very positive feedback, data analysis of some of the more recent data collected is ongoing. It is too early at this stage to be sure whether there will be long term impacts and effects outside Danang, i.e. whether the enterprises will maintain the innovations and the authorities will scale up the experiences.

One of the challenges was determining interventions that were feasible and amenable to the enterprises, since the need to optimise profitability as well as protect workers' health and productivity is not easy, particularly as global temperatures continue to rise. Despite comprehensive legislation to protect workers' health at the national level, implementation of policy has been challenging due to the complexity of that policy, the lack of resources and the lack of cooperation and coordination (Dao Thi et al., 2013). Thus, despite greater awareness of this issue as a result of the project, workers still seem reluctant to take action when suffering symptoms of heat stress. Of the total surveyed participants, 84 percent said they would take no action when experiencing dizziness, hives or heat cramps. This may be reflective of the current workplace culture around sickness, the continuing difficulties in implementing and enforcing workplace hygiene and safety regulations, and remuneration based on hours worked. Nevertheless, with the new Labour Law coming into effect next year and COHED's efforts throughout this Rockefeller supported project, it is hoped that longer term positive changes have started to be realised.

Managers at Vinaconex No. 25 make a note of the current temperature on the enterprise's heat index monitoring board, Danang, 14 May 2015

3.3 THE DYNAMICS OF CLIMATE CHANGE UNDERSTANDING: A CASE STUDY FROM A COASTAL MEKONG DELTA COMMUNITY IN VIETNAM

The Asian Management and Development Institute (AMDI), under the USAID-funded Mekong Adaptation and Resilience to Climate Change project (Mekong ARCC project), aims to raise awareness of climate change effects and adaptation options in communities in the Mekong Delta, including in Thuan Hoa commune, An Minh district, in Kien Giang province.

- Awareness-raising and education activities at the local level, to increase individuals' and communities' knowledge of climate change and adaptation strategies.

Mekong Delta

Climate change effects and risks are high in Kien Giang province; many people are vulnerable and livelihoods and assets are exposed to the effects of climate change. Climatic changes and sea level rise have already been observed, and modelling suggests that Kien Giang might experience the following climate change effects by 2050 (USAID, 2013; 2014):

- 3°C increase in annual mean temperature with the peak maximum temperature rising from 38.5°C under baseline conditions to 41.8°C (baseline period 1980-2005 (USAID, 2013: 41))
- Mean sea level rise of 30cm, which in the rainy season will exacerbate floods and crop damage; and in the dry season intensify salinity of water and soil
- Average annual rainfall will increase from 1,280 mm/year to 1,370 mm/year; monthly rainfall during September–October (the wet season) will increase more than 10 percent while January, February, March and April (the dry season) will see a 10 percent reduction
- No large rainfall events (less than 100 mm/day) occurred in the 25-year baseline; such a storm is expected to occur once every 25 years from 2050 (USAID, 2014)
- There will be more water stress at the end of the dry season as drought will occur in 80 percent of years during April compared to 60 percent occurrence during the baseline.

In order to more effectively address these climate-related challenges, local people, as well as the Government and external agencies, require a high level awareness of specific climatic changes in order to react appropriately.

The USAID Mekong ARCC project aimed to increase community knowledge of climate change and the drivers of climate change, as well as climate change adaptation strategies. It targeted local women and men, as well as officials of the Commune People's Committee, Agricultural Extension Officers and Vietnam Red Cross staff.

The level of awareness was surveyed (AMDI, 2014a) upon which community-level activities were conducted that influenced people's perspectives on climate change; and the level of climate change awareness was then surveyed again (AMDI, 2014b). These were just some of the activities of the two-year project, which also includes adaptation planning and intervention.

Awareness raising followed a top-down scientific approach combined with a bottom-up participatory approach. Scientific climate model projections about province and commune level climate change for 2050 were shared with the community in educational messages, activities and materials. The main activities were:

- A vulnerability assessment (AMDI, 2014c): this consisted of meetings with community leaders including the Party Committee, People's Committee, mass organizations, schools and village heads, and multiple meetings with the sub-groups of four villages.
- A livelihoods assessment (AMDI, 2014d) and aquaculture assessment (Clausen, 2014): these assessments

involved focus group discussions with livelihood groups including rice-shrimp farmers, aquaculture farmers, natural fishery harvesters, land-poor and landless farmers, women, and livestock farmers. Group discussions were also held with commune government, representatives from Agricultural Extension offices and the Women's Union.

- A scientific climate story (AMDI, 2014e): the purpose of the scientific climate story was to add a scientific lens to community level planning. Through education, mapping and visioning exercises, AMDI and the Vietnam Red Cross translated scientific climate projections from the USAID Mekong ARCC scientific study (USAID, 2013) into a practical scenario building tool that helped villagers envision how projected changes will impact community assets and livelihoods.

Figure 1. Self-perceived knowledge of climate change

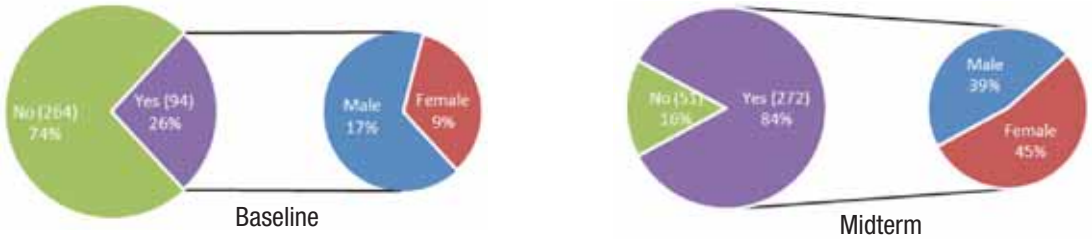
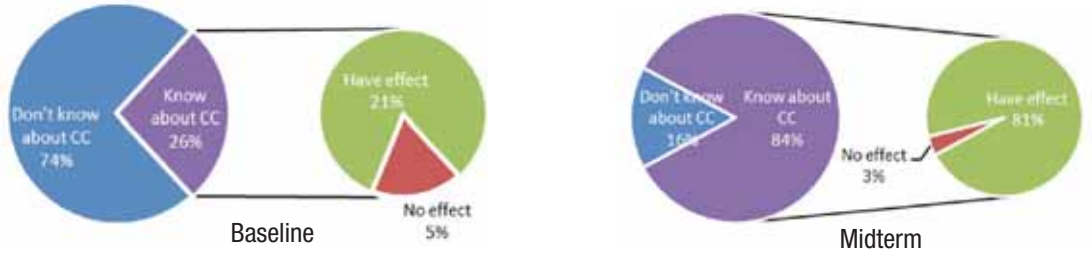


Figure 2. Do you think climate change will have effects on your community?



There are two datasets, i.e. the baseline survey and the midterm survey after several awareness raising activities, covering information on income, health, and knowledge-attitudes-practices (KAP) for households. Baseline data collection was conducted from 7th-9th March 2014, and the midterm survey was done from 3rd-8th November 2014. The data show a strongly and widely increased local understanding of climate change and its effects (Figure 1 and Figure 2). 84 percent of people now have at least a basic idea of climate change, and this has shifted to a greater proportion of women than men.

The baseline survey report (AMDI, 2014a) revealed that people in Thuan Hoa commune were generally not well prepared to respond to the effects of climate change (Figure 3). Responding to the question about how prepared they were to deal with the impact they were concerned about, more than 70 of those aware of climate change reported that they either did not know how or were not prepared at all. From the mid-term results it is evident that project activities can effectively increase awareness of climate change and its associated impacts if undertaken in an appropriate and locally relevant way.

Figure 3.Do you think it is possible to prepare for climate change impacts?

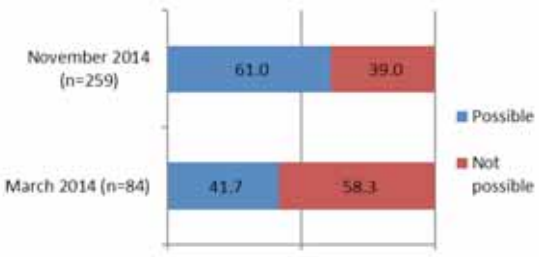
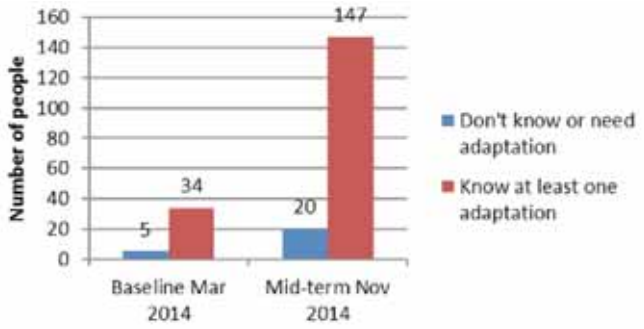


Figure 4.Do you know about adaptation strategies to climate change?



Perhaps the most important change in understanding is around climate change preparedness and adaptation. Of people who knew what climate change was, only 34 people could describe at least one adaptation strategy at the baseline, while this increased to 147 people at the mid-term (Figure 4). This shows the result of comprehensive activities in the commune that go beyond basic education to providing more locally relevant adaptation advice and options. The results suggest that knowing about climate change is an important catalyst for being more prepared and thus climate change related projects need to raise awareness and facilitate development of appropriate adaptation and mitigation responses.

A low level of formal education is a barrier to understanding scientific information about climate change. Therefore communication must be tailored to effectively convey this information to particular communities. Mid-term results show that the interactive approach that was followed has been successful in increasing peoples' understanding of a range of climate change and weather related topics.

Projecting expected climate change effects at the province and local level and presenting this scientific information on climate change in a manner that is easy to understand to community workshops has thus proven to be very relevant and effective in awareness raising.

"For the first time in fifteen years, my rice crop has completely failed," said Mr. Le Hoang An (pictured) about the 2014-2015 rice season, a farmer from Thuan Hoa commune in the Mekong Delta. ***"We didn't get enough rain to wash the salt from the field, so the rice died when its roots hit the salty layer in the soil."***

A series of highly interactive, participatory workshops with villagers helped clarify the differences between "weather" and "climate", what climate change means for their village and possible ways to strengthen their livelihood resilience in the face of climate change impacts, such as growing salt-tolerant rice, regularly measuring salinity, and developing shrimp nurseries to speed the growth and sale of shrimp to market so that fields can be turned back for rice cultivation more quickly. After six months of awareness raising and community engagement activities in Thuan Hoa commune, the number of villagers who reported being aware of climate change tripled and the number of villagers who could successfully identify at least one climate change adaptation strategy quadrupled.

After the education activities, Mr. An said, ***"The workshops helped me to understand how salt-tolerant rice can cope with different weather and soil conditions."***[4]

[4]Read more at http://www.mekongarcc.net/blog/climate-change-education-key-encouraging-mekong-delta-farmers-adapt-farming-practices.

Critically important was the tailoring of education topics to a locally relevant context. For example, the project's initial climate projections combined with community-level studies allowed staff to pinpoint key vulnerabilities in the community. This resulted in high interest during project activities that aim at increasing resilience to climate change effects, and an increased understanding of adaptation options such as the importance of salt tolerant rice.

Recommendations

These findings lend support to a more coordinated and targeted climate change education framework for adults in rural communities in Vietnam. The Vietnam Red Cross is a key implementer of climate change and disaster risk reduction education and training activities through its national 'master trainer' network. Consolidating and issuing a package of climate change education materials and teaching methods for the Vietnam Red Cross master trainers to implement would reinforce their work. The primary and also secondary curriculums for nation-wide use on environment and climate change education should be supplemented by region or province-specific impacts and adaptation options. Such locally specific elements of the curriculum should be supported and approved by the Ministry of Education and Training (MOET) and integration into local education practice. Members of the Climate Change Working Group (CCWG), including AMDI, should inform any further developments on the climate change education curriculum through their direct experience with communities.

While the mid-term results showed improvement in women's climate change knowledge, the commune vulnerability assessment (AMDI, 2014) shows that there are more systemic issues to address. Men are dominant in the community governance structure, which contributes to women's lack of voice and influence in climate change adaptation decision making and planning. There are no women as heads of the People's Committee, technical units or mass organizations, except the Women's Union. Currently, women account for only 25 percent of the total staff of the commune government. Past research by AMDI has shown that participation in formulation of social economic development plans (SEDPs) and flood and storm control plans by women is limited in comparison with men. It is important that any future policy developed in regards to climate change adaptation in the coastal Mekong Delta address this under-representation of women.

Location specific cartoons used for climate change impact education in a community workshop for the Scientific climate story, Thuan Hoa commune.

3.4 STRONG HOUSE, SAFE PEOPLE, AND COMMUNITY DEVELOPMENT

Natural disasters are common in Vietnam and include around five typhoons as well as tropical storms every year, which mostly affect the central coastal region. These extreme weather events threaten housing and small-scale infrastructure, leading to unsafe environments for local people. Development Workshop France has been working with local communities to promote safer construction methods, and build local capacity in taking effective safety measures.

- Awareness-raising and education activities at the local level to promote community and household-driven efforts for safer environments
- Supporting the government to implement safe construction in flood/storm prone areas

Risks of storms and associated surges of coastal, tidal water and floods are increasing as a consequence of climate change, and the probability of "super typhoons" appears to be increasing, such as typhoon Haiyan that hit the Philippines and threatened Vietnam in 2013.

The poor and near poor in Vietnam have managed to upgrade their houses, from houses built predominantly with local materials in the 1980s and before, including bamboo and rice thatch, to houses made with cement, brick and roof tiles for the large majority of the population including the poor. However, many of those solid or semi-solid homes are "unable to resist the impact of repeated typhoons and floods" (UNISDR, 2014). Recovery of those homes after damage is costly for the poor and repeated damages has caused debt spirals and persistent poverty.

Development Workshop France (DWF) has been supporting poor and vulnerable households and communities in areas at risk of floods and storms for about 25 years.

DWF is promoting a safer built environment, including "10 key points" of typhoon resistant construction (see e.g. UNISDR, 2014), which are principles of safe cyclone resistant construction that apply to all types of housing using local resources. It is also engaging officials and experts at national, provincial, district and commune level, as well as local builders. One critical issue is that official policy, programmes and standards for housing & small infrastructure were not aligned with local risks and needs.

DWF is building local capacity for greater safety with training and awareness raising through activities such as popular media, theatre, concerts, inter-commune boat races, mobile displays and school events and plays by children. Its construction proposals include attention to means of production (livestock, equipment, food and seed stocks), which contributes directly to reducing socio-economic vulnerability, as communities are less adversely affected by the impacts of climate extremes and climate change. It developed community participation-based, household driven action on safer housing. It supports institutional capacity to help the community and gender balance, has provided credit for safe and affordable houses, helped to access to safe schools and infrastructure central provinces such as Thua Thien Hué province.

DWF has dialogues with targeted households and trained local builders, who support families in house-strengthening. It has organised workshops and surveys by provincial Departments of Construction (DOCs) and their technical partners, and district technicians[3].

In 2011, DWF with JANI (a network of NGOs, supported by the European Union) produced the "Vietnam Atlas of House Vulnerability & Strengthening", which was endorsed by the Ministry of Construction (MOC) (DWF/JANI, 2011). In 2012-13 it supported 12 Provincial Departments of Construction (DOCs) to survey their provincial "Atlas of House Vulnerability

[3] See also: http://www.dwf.org/en/english/vietnam

& Strengthening". In 2014-2015, DWF is supporting the MOC's "Programme 48" to build safe shelter for 25,000 poor and vulnerable families in 13 Provinces (SR Vietnam, 2014a), which led to the "Decision 48/2014/QD-TTg Atlas of flood and storm resistant model housing" (MOC-DWF, 2015).[4]

In 2015 and 2016 DWF is collaborating with MOC to prepare the National Standards for Safe Construction in Flood/Storm risk areas (Coastal areas) that address emerging climate change challenges and should help address local risks, capacities and needs.

These standards should help bring national programmes for safe construction in flood & storm areas up to date, taking account of contemporary and evolving construction risks, needs and techniques. Agreement by the MOC is expected in December 2015, and publication by the Ministry of Science and Technology in early 2016. These standards are based on a survey of local practices of house construction in central Vietnam, and aim to improve the structures and their components to resist the impacts of storms and floods with the existing materials, skills, and capacities of poor and near-poor families.

Provincial Departments of Construction support the implementation & monitoring of Programme 48. In the process, technicians from provinces, districts and communes are improving their capacity to support vulnerable families in a manner that responds to local needs and climate related risks. Among the target group of 25,000 poor and vulnerable households under Programme 48 there are now many examples of safer homes, which include extensions that give a safe refuge for safe refuges for family members and/or livestock above flood levels.

DWF has over the years built a lot of experience in engaging households and communities in safer housing. It pursued community participation and documented its experiences.

The work of DWF in central Vietnam shows that it is certainly possible to take community- and family-based climate change initiatives and translate them into policy and practice at national and provincial level, which greatly enable scaling up and spreading of the lessons.

In particular translating local experience into revised national standards and policy has been a major success of this CBCCI. Similarly, engaging the provincial DOCs in assessment of local practice and needs, and for them to integrate this into local guidelines has also been highly successful (see: DWF, 2013). However, not all provinces have expressed the same level of engagement, as some provinces have other priorities.

At Nguyen Van Thuan's house, safe shelter for people and animals is accessed by a ramp for cattle and other livestock. Son An commune, Ha Tinh province

Nguyen Coi adds a two storey structure adjacent to his present home, Quang Tho commune, Thua Thien Hue province

[4] These central region provinces are: Thanh Hoa; Nghe An; Ha Tinh; Quang Binh; Quang Tri; Thua Thien Hue; Danang; Quang Nam; Quang Ngai; Binh Dinh; Phu Yen; Khanh Hoa; Ninh Thuan.

3.5 URBAN CLIMATE RESILIENCE HOUSING IN DANANG CITY

Danang is the largest city in Central Vietnam and is highly vulnerable to tropical storms and typhoons due to exposure and limited ability to respond, while the severity of such events is expected to increase due to climate change (IMHEN, 2013; Opitz-Stapleton and Hawley, 2013). ISET, The Women's Union in Danang and the Central Vietnam Architecture Consultancy worked to improve on post-disaster financial support services to enable extremely poor, poor and near-poor households to make their homes more resilient.

- Setting up and loans and credit shceme for households to reinforce their homes to become more storm resistant.
- Building capacity and providing technical assistance on storm resistant construction.

The storm season in Danang is from May to December. The poor population of Danang is disproportionately vulnerable due to low adaptive capacity and poor people are heavily exposed to storms due to low standards of housing, which are likely to be damaged by strong winds and flooding. The city is growing rapidly due to rural-urban migration, and low-income residents often live in weak houses. Three major typhoons, Xansane in 2006, Ketsana in 2009 and Nari in 2013, caused severe structural damage to thousands of houses in Danang, and demonstrated the importance of investing in climate resilient housing.

The Women's Union (WU) in Danang has undertaken a successful program of revolving credit and technical support to enable low-to-mid income households to finance structural upgrades to owner-occupied houses over the past three years, with the support of the Institute for Social and Environmental Transition (ISET).

Homes are often poorly constructed and maintained, and households frequently struggle to recover from storm damages due to low income, limited compensation payments, and rising costs. A feasibility study on housing conducted in 2011 confirmed the technical need and household demand for affordable loans for reconstruction or reinforcement of houses of poor and near-poor households in exposed areas. Of the approximately 400 households surveyed, over 80 percent indicated desire to borrow for house improvements (Nguyen, H. et al., 2011). Tran (2013) found that "local people repaired their roofs very quickly after the typhoon to recover their living space without any storm resistant techniques, even though they are quite simple and low-cost. In this way, the city's post-disaster financial support did not help improve resilience, because when the next storm arrives these houses will suffer the same damages again."

This project was one of the winners of the 2014 Lighthouse Activity Awards by the UN Climate Change secretariat, which was honored at UN Climate Change Conference in Lima, 2014.

The project's expected outcome was that homes of the urban poor in eight disaster-prone wards of Danang City will be resistant to storms. The project focused on extremely poor, poor, and near-poor households in the eight wards, and Danang Women's Union staff.

The Danang Women's Union and Central Vietnam Architecture Consultancy (CVAC) were the main implementers of the project. They assessed needs of households, their general house condition, income and repayment ability, to decide who were eligible for the program. They discussed households' needs and expectations based on their particular financial capacity, to develop a suitable design for the reinforcement or reconstruction.

The project addressed some major challenges:

a. Poor, low income households have unstable livelihoods, high rates of unemployment, and temporary low-paid jobs, which undermines efforts of housing risk reduction. Their priorities are basic needs such as food, healthcare, or school fees, and DRR is secondary.
b. Local people have limited awareness of climate change and the importance of climate risk reduction for a long-term development, leading them to underestimate the actual danger of climate hazards and prefer immediate or short-term responses.
c. Local builders usually masons, have limited skills in building safer and more resilient shelters.
d. Communication and consultation with experts and professionals (i.e. local architects and engineers) about building resilient shelters is lacking.

More specifically, the project's targets, activities and achievements were as follows:

1. The project targeted 425 households over six years, to have **reinforced or reconstructed their homes** to withstand typhoons. The program set up a Revolving Loan for Storm Resistant Housing and provided credit. By June 2015, loans had been disbursed and construction finished for 377 households (222 were renovated and 155 were reconstructed).
2. It provided grants of VND 35 million (about USD1,700) **to 20 extremely poor households** for new storm resistant houses, of which VND 30 million came from the Vietnam Fatherland Front (a national "mass organisation" with local chapters across Vietnam) and VND 5 million from the project. These households were identified by the Danang Women's Union and the Department of Labour, Invalids and Social Affairs (DOLISA).
3. It provided professional **technical assistance,** for the benefit of all those households. CVAC did technical surveys, design, and construction management, including hiring, training, and monitoring construction companies. They worked directly with each family, tailored the housing designs and provided cost estimates.
4. The project **built capacities of Women's Union** trainers and other Women's Union staff, on climate change, Community Based Disaster Risk Management (CBDRM), microfinance management, project management and/or monitoring and evaluation tools. Nearly 800 staff were thus trained by June 2015, and, for example, the Women's Union is regularly using the logical framework for planning and monitoring, evaluation and learning tools.
5. **Capacity building** exercises were completed, with project participants in eight wards, and of builders in eight wards

Storm resistant house, Danang 2013

Physical design is fundamental for climate resilience. The project addressed the use of safety-related measures for storm risk reduction, such as the addition of posts and beams into building structures and strong connections for roof reinforcements. Improvement of technical aspects for disaster risk reduction have been emphasized. The local housing designs suggest that local knowledge about DRR is rich and plentiful in local communities of Central Vietnam, but could be improved by skilled persons to capture and interpret them into resilient housing solutions effectively. (Tran, A. and Tran, P. 2014:27)

Inside a storm resistant house, Danang 2013

on using storm resistant techniques. By June 2015 nearly 650 targeted people had joined awareness raising workshops and a climate change contest on climate change and response, CBDRM, and storm resistant housing techniques.

Based on the success of the project, the Women's Union mobilized about VND 840 million (about USD 40,000) from international and local organizations and the community to support 82 additional households to rebuild or repair houses damaged by typhoon Nari in 2013, and to educate people about storm resistant building techniques. Storm-resistant designs were provided by Women's Union at no cost. The project provided lessons on technical support for disaster resilient housing construction and credit scheme for urban poor households, which is being scaled up by a climate resilience housing project funded by the Asian Development Bank (ADB). ISET is working on that with the Department of Construction (DOC), Women's Union and Department of Foreign Affairs (DOFA) of Danang.

Ms. Phan Thi Lan, owner of a storm resistant house, shares her satisfaction with her house after Typhoon Nari with ISET and the Head of Danang's Women's Union, Danang 2013

The results of the project are profound and are likely to have long-term impacts.

Typhoon Nari caused USD 4.8 million in housing damage in Danang city in 2013, but all of the 245 houses that had been completed by then withstood the effects of this typhoon. Many houses and public structures had their roofs blown away or were otherwise damaged or destroyed, even right next to houses under the project. People highly appreciated the safety in their own houses that protected them from the strong storm (Tran, P., 2013). The project has given many families joy and peace of mind, as they feel safe from the danger of rain or storm through the external support, while family members contributed to the work, financially or with their own labour, reinforcing self-esteem.

This project supported the Women's Union and also Danang Climate Change Coordination Office (Danang CCCO) and local government departments, by building capacity for reducing disaster risks and supporting community adaptation to climate change in the housing sector. The project also built knowledge and skills on mobilizing financial resources, and skills and tools to build resilient housing, in a partnership with the private sector (CVAC).

The Women's Union core team found that their biggest challenge in working with households was making the case for reinforcement techniques, which impose additional costs for construction. It decided to emphasise awareness raising on climate change, so that even households who do not benefit directly from the program will consider the need to incorporate reinforcement techniques when they construct new homes.

Deputy Prime Minister Nguyen Xuan Phuc in Danang on 9/11/2013, inspecting preparations for super typhoon Haiyan (expected to make landfall the next day)

Communication and awareness raising on how to build a house which is safer in the face of storms have been very important in this project, and this knowledge has already started to spread to families, friends and further beyond the immediate beneficiaries.

This case shows the importance for success of leadership by local organisations and involvement of beneficiaries, local consultations and the use of local knowledge that is combined with expert knowledge, in this case in particular of CVAC.

The project made several recommendations to local policy makers (Tran, Tran, and Mulenga, 2014: 208, 211):

- Weaknesses in local practices of housing construction towards risk reduction and climate resilience show that there is a need to promulgate policies on building permits in hazard prone areas, and to include safe principles in housing construction. Long-term strategies for increasing housing resilience should also be issued. A first step towards this has been taken, as after typhoon Nari in 2013, the Women's Union shared the evidence of resilient housing, the guidelines and the construction process with the Danang People's Committee (the Danang authority) which then officially instructed the DOC and district level authorities to apply these experiences into the process of reconstruction (Danang People's Committee, 2013).
- Many households living in hazard prone areas have limited financial resources. Local authorities together with the private sector need to plan and implement actions for local economic development. Programs for vocational training or financial support for household's economic development need to be put in place.
- Professional agencies still rarely participate in the construction of small housing in peri-urban and hazard prone areas. The main obstacle of high costs of design services for low-income households requires local governments to initiate support policies to overcome this.

To support the Women's Union and other organizations promoting storm resistant housing, and to enhance and spread this experience further, ISET-International with the Climate Development Knowledge Network (CDKN) have recently undertaken a cost-benefit analysis (CBA) to estimate the average economic costs averted from building to storm resistant standards. This collaborative effort will also support a design competition for architects to design safe, culturally appropriate homes for low-income households in Danang.

"Results of the quantitative CBA show that the returns on investment in typhoon resilient housing are high in most scenarios, meaning that investment in typhoon housing is economically viable. Yet, the question exists about why households are not choosing to make this investment when returns exist. Through this research it became clear that asymmetric information exists with innovation that one agent (the household) in this transaction does not have complete information available to them and cannot acquire that information. Therefore, market failure is occurring. To adjust the market failure, we explore policy implications for individual households and public sector interventions." (Tran, T. et al. 2015:97)

Mr. Tran Van Sanh is happy with his storm resistant house, Danang 2013

3.6 EMPOWERING VULNERABLE WOMEN, MEN AND CHILDREN IN DISASTER RISK REDUCTION AND CLIMATE CHANGE ADAPTATION

Poor and vulnerable women, men, members of ethnic minority groups, children, the elderly and people living with disabilities face common barriers to taking part in decision making processes in their communities, in Vietnam and many other parts of the world. Oxfam, MDC, and World Vision are engaging women, including those from ethnic minority groups, and children with disabilties, in proactive initiatives for climate change adaptation and disaster risk reduction.

- Participatory Action-Oriented Training to enable women's empowerment, with women, including ethnic minority women, in the Mekong Delta
- Training women trainers on DRR and climate change
- Swimming lessons for disabled children

Mekong Delta, Thanh Hoa Province

Barriers to decision-making may include a lack of time, knowledge, and language skills. They may also include a lack of recognition by wider society that vulnerable groups and individuals do in fact have skills and knowledge and they are thus excluded from decision making processes, and there may also be legal or political barriers. Even if wider society recognizes their rights, knowledge and skills, authorities or intermediaries may lack the skills and resources to enable poor and vulnerable women, men and children to take part in decision making and implementation of development actions.

Policy on climate change such as the National Target Program to Respond to Climate Change (NTPRCC), aims to integrate climate change action into development strategies, programs, and plans across all sectors and make general commitments to raising awareness and involving the vulnerable population. However, addressing vulnerabilities of specific social groups or engaging them in climate responses are not very explicit in climate change policies. The Government of Vietnam has nevertheless recognized the value of the many successful attempts of NGOs in Vietnam to support the empowerment of poor and vulnerable women, men and children in the context of disaster risk reduction (DRR) and responding to climate change.

Participation and empowerment of local people, including the poorest and the most vulnerable women, men and children is consistent with "grassroots democracy" regulations in Vietnam, expressed in the slogan "dan biet, dan ban, dan lam, dan kiem tra" – the people know, the people discuss, the people do, and the people monitor.

In particular, over the past decades many NGOs have applied different forms of community-based disaster risk reduction (CBDRM) in their projects, in cooperation with local authorities and mass organisations such as the Vietnam Red Cross and the Women's Union. The Government demonstrated its appreciation when the CBDRM approach was absorbed in the nation-wide programme on "Awareness raising and Community based Disaster Risk Management", which targets the 6,000 most vulnerable communes in the country, also known as the "national CBDRM programme under Decision 1002" (SR Vietnam, 2009) (see e.g. section 3.1 and 3.7).

NGOs and the national CBDRM programme are looking in particular at methodology and guidelines to enhance participation and empowerment of vulnerable groups, for example on Disability-inclusive CBDRM (see section 3.1); methodology for inclusive and participatory vulnerability and capacity assessments (VCA) (SNV, 2015), and Participatory Action Oriented Training (PAOT) for women's empowerment.

Oxfam and MDC cooperated in the "Partnership for Equitable Resilience to the Impacts of Climate Change of the Coastal Communities in Deltas of Vietnam" (PRC) (see also section 3.7 and 4.6). They observed that, in the communities targeted by the PRC, there was limited community consultation and participation of vulnerable people in planning and decision making related to climate change and disaster risk reduction (DRR), including women and ethnic minorities such as the Khmer group in provinces in the Mekong Delta, was low. This was partly the result of a lack of awareness of climate change impacts, and women and ethnic minorities faced several other barriers to taking part in community planning and decision making.

The PRC supported initiatives at the local level in five provinces and achieved increased climate resilience for more than 50,000 people in mostly coastal communities, half of who were women. This was partly due to raising awareness, for which the Participatory Action Oriented Training (PAOT) was a key methodology.

PAOT was developed as a practical method to support workplace initiatives and self-help voluntary actions. It can help, for example, farmers to carry out immediate improvements, especially by using locally available resources (Ton That Khai et al., 2011), and was applied to raise awareness of climate change and adaptation actions, in particular in Mekong Delta provinces (Oxfam, 2014).

PAOT uses many visual materials, photobooks, leaflets, and checklists. The process starts with a household survey and then takes a number of structured steps (Oxfam, 2014):

Step 1: Determine the implementation unit, their roles and responsibilities.
Step 2: Determine the location and replication of PAOT.
Step 3: Develop strategic framework, and identify priority issues.
Step 4: Discuss with local authorities at district and commune level.
Step 5: Prepare a plan and detailed budget.
Step 6: Hire experts/trainers trained in PAOT.
Step 7: Develop the activity-registration table and print documents.
Step 8: Select and train the team of trainers and communicators (in communication skills).
Step 9: Visit households and organize meetings, using checklists to make improvements in households, and to share learning and experiences among households.
Step 10: Monitoring & evaluation of support and actions, and reporting.

Participatory Action-Oriented Training, Tien Giang province

PAOT complements traditional communication methods, is simple and practical, and brings about behaviour change. The basic principles of PAOT include:

1. *build on local practices;*
2. *focus on strengths and achievements;*
3. *link working conditions with other management goals;*
4. *use learning by doing;*
5. *encourage exchange of experiences;*
6. *promote people's voluntary involvement.*

Ms. Cuc guides her group in taking climate change adaptation actions, Thai Binh province

Members of the Women's Union were trained and supported to deliver PAOT, which (in turn) led to the establishment of a network of 528 village facilitators/communicators, including a balanced number of women. Many Information, Education and Communication (IEC) materials were developed and used in the training sessions, and a PAOT manual was developed. PAOT helped to reach vulnerable people, including women headed households, the poor, people living with disabilities, and members of ethnic minority groups. It encourages local people to start with the smallest and least expensive improvements so that participants can take advantage of the resources available to them. It built the capacities and confidence of Women's Union members as well as local people.

From passive listener to active trainer: creating a group of women-trainers on disaster risk reduction and climate change adaptation.

Women living in coastal areas of Hoang Hoa district, Thanh Hoa province are particularly vulnerable to climate-related shocks such as typhoons. They can play a central role in delivering messages about climate change and disaster risk reduction to their families and communities.

World Vision International's CATREND project (Central Areas of Thanh Hoa Province Resilient to Natural Disasters) (WVI, 2014) has improved women's knowledge and capacities on disaster risk reduction (DRR) and climate change adaptation, and through them ensured wider awareness and skills. It trained a group of 31 women as trainers, who then provided training to other local people, on ways to address the effects of climate change and to reinforce community-based disaster risk reduction (CBDRM).

The women-trainers were trained extensively, expanding their DRR and climate change knowledge; learning about the hazard, vulnerability and capacity assessment (HVCA) methodology; and ways to improve households' disaster preparedness planning. They practiced providing training within the trainers group, in order to develop their communication skills and their confidence in providing training for local people. Finally, they conducted DRR and climate change adaptation training for people in their own communities: they trained 1,000 families in 36 villages of four communes in Hoang Hoa district. As a result, many local people now have better disaster preparedness awareness

Ms Nguyen Thi Chung, who is in her 30s, used to be shy and reluctant to join activities organised in her community, but she can now can speak clearly and confidently in front of many people in Hoang Thanh commune.

"The first time I had ever heard about climate change and disaster risk reduction was when I participated in the training conducted by CATREND Project in 2012. After the course, I recognised the issues were relevant to my daily life as I started to observe the weather phenomena happening at home," she recalls.

She continued to take part in training courses under the project for three years, initially just as a listener but later she started to share what she learnt with her community members. She started designing her own training materials in 2014. Her first lesson, which lasted 60 minutes, was illustrated with a lot of creative drawings and graphics. She had organised four communication sessions for a total of 120 people by December 2014.

"The most important is how to make my lessons relevant and intelligible. I used local dialects, gave explanation and provided examples in accordance with the local context," she said.

and skills, and the communities have better disaster preparedness plans, reducing local vulnerabilities and exposure (e.g. evacuation is better organised). The women-trainers have been empowered. They have become local leaders in risk assessment and preparedness planning at the household and community level. They have also organised many practical activities such as gathering rubbish on beaches and sweeping alleys and streets, mobilizing hundreds of men and women in their communities.

Drowning is one of the major causes of death of children living near the coast, rivers or lakes. Children in Hoang Hoa district are at high risk of drowning as they may face severe storms and flood.

Knowing how to swim can be a condition for survival in some instances, particularly for children with disabilities who need to overcome both physical limitations and also feelings of inferiority to help themselves to cope with disasters.

World Vision's CATREND project cooperated with schools to organize swimming classes for children, for example in the summer of 2015, when 230 children joined six classes. These courses gave children confidence in their swimming skills and reduced the risks they face during disasters. This included some children with disabilities whose skills and confidence improved dramatically, although the school and local officials needed to make an effort to include some of them, as the case of Dai and Ngia below demonstrates.

Empowering vulnerable groups has multiple positive effects.

Women who are well trained can provide good training for local women and men. They can thus raise community skills and awareness, leading to household level actions as well as community plans and actions. Many approaches to training and awareness raising demonstrate that this can be very empowering, as local women became trainers and communicators and took up new roles in the community. This improves gender equality and reduces climatic risks, and has wider positive effects on communities. The inclusion of children with disabilities in, for example, swimming classes also demonstrated to have multiple positive effects. The children become more empowered as their vulnerability during floods reduces and their (general) confidence improves.

Dai lost sight in one eye and Nghia has a disability related to his arms. The two boys live with their grandparents while their parents work far away from home. They are both sixth-graders.

Experiencing feelings of worthlessness, the two boys always keep to themselves, isolated from their peers. They did not want to join swimming classes despite their teacher's encouragement, as they were afraid of water and believed that with their disabilities they could not swim like other children. Their grandparents were worried too: "His parents are away for work while I'm too old to secure my grandson's safety. If something bad happens, how I can explain it to them," said Dai's grandfather. Nghia's grandmother didn't think her grandson could swim. "He was born with a disability, how can he swim?".

But the teacher and local officials persuaded the boys and the grandparents. Special lessons were tailored for them: Nghia learnt to move his legs correctly because he can't wave his arm, and specific breathing and floating skills were given to Dai as his eyesight is poor and he fears water. After ten sessions, the two boys could swim half the length of their swimming pool. ***"I'm so happy that I finally know how to swim," Nghia said. Dai added, "I was afraid of water and my teacher's scolding, but I'm not afraid now. I can dive and keep my eye open underwater, like a fish. I'm so excited."***

3.7 INTEGRATING DISASTER RISK REDUCTION AND CLIMATE CHANGE ADAPTATION INTO LOCAL LEVEL SOCIO- ECONOMIC DEVELOPMENT PLANS

The Government of Vietnam has issued a range of climate change related policies, which need to be integrated into local level planning. Oxfam has been supporting the mainstreaming of community-based DRR and climate change adaptation into commune and district level social economic development plans (SEDPs) to ensure that action plans address the climate-based needs of local people, including women and members of different ethnic minority groups.

- Awareness-raising, information and preventative actions to increase the resilience of workers to heat stress.
- Contributing to national agenda on heat stress prevention.

Tra Vinh province

Climate change policies in Vietnam include:

- The 'National Target Programme to Respond to Climate Change' (2008), which focused on climate change impact assessment and development of adaptation and mitigation measures.
- The National Climate Change Strategy (2011) and related national Climate Change Action Plan (2012) with priority actions on adaptation and also mitigation.
- The National Green Growth Strategy (2012) and related national Green Growth Action Plan (2014), also with a series of priority actions, including greenhouse gas mitigation actions in particular.

In addition, the Law on Natural Disaster Prevention and Control was issued (2013); the law on Environmental Protection was amended (2014), to include a climate change chapter; and climate change was mainstreamed into the National Socio-economic Development Strategy (2011-2020) and the Socio-Economic Development Plan (2011-2015).

Finally, there are nation-wide programmes, of which the "Awareness raising and Community based Disaster Risk Management" stands out, targeting the 6,000 most vulnerable communes in the country, also known as the national CBDRM programme under Decision 1002 (SR Vietnam, 2009) (see also section 3.1).

As per normal policy-making practice in Vietnam, all economic sectors and provinces must develop action plans related to much of this, including action plans on climate change and green growth. They were also expected to mainstream climate related matters into their sectoral or provincial social-economic development plans, guided by the new and revised laws and national strategies and plans. For example, the Law on Natural Disaster Prevention and Control states in its Article 16 that disaster risk reduction (DRR) information and plans should be mainstreamed in Social-Economic Development Plans (SEDPs).

SEDPs are the basis for annual allocation of investment and recurrent public budgets. Provincial plans are built over cycles of 5 years, and they are based on the national as well as commune and district SEDPs. Guidance on methodology for investment preferences on climate change adaptation during social-economic development planning has been issued by the Ministry of Planning and Investment (MPI, 2013), but guidance on mainstreaming of DRR into SEDPs is only expected to be issued in 2016.

A number of NGOs have supported local planning processes in communes and higher levels, usually as a component of their community-based climate change projects in provinces with high indices of poverty and climate-related vulnerabilities, and limited financial and human resources.

Mainstreaming of climate change responses and DRR in SEDPs needs to happen first at the commune level, where budgets are small but real vulnerability reduction can be achieved; without this effective mainstreaming of climate change responses in provincial SEDPs cannot be expected.

Tra Vinh Province issued Decision 264 on the "Implementation of the Action Plan of the National Target Programme to Respond to Climate Change in Tra Vinh", for the period 2010-2020, recognizing that mainstreaming of climate change responses into SEDPs at the commune level is very important. Oxfam supported this mainstreaming in Tra Vinh province under the "Partnership for equitable resilience to the impacts of climate change of the Coastal communities in deltas of Vietnam" (PRC) (Oxfam, 2015b&c; see also section 4.4).

One concern in Tra Vinh (and elsewhere in Vietnam) is that the financial needs for community-based disaster risk management (CBDRM) tend to be much larger than the budget that is allocated under the national "CBDRM programme under Decision 1002", making it necessary to access provincial resources in order to increase local resilience.

Oxfam promoted information sharing and discussions on climate change vulnerability between commune leaders and marginalised groups, to integrate climate change, disaster vulnerabilities, and risk reduction measures into the communes and districts' SEDPs. The approach to planning also ensured inclusion of women and ethnic minorities, and it built upon previous work by the International Fund for Agricultural Development (IFAD), which took a market-orientated participatory approach and was successfully institutionalised by the province authorities, giving it an annual budget allocation.

Oxfam found that a Planning Task Force of commune leaders and staff for SEDP planning is important, and it also set up a Technical Support Group to advise on community-based disaster risk management (CBDRM).[5]

The Department for Planning and Investment demonstrated a strong commitment, particularly focusing on furthering local, participatory SEDP planning guidelines that integrate DRR and climate change adaptation, as well as gender, in both commune and district level programs.

Training for the planning working group of Phuoc Hao commune, Chau Thanh district

Tra Vinh: provincial review of planning work in 2014

[5]TSGs must be established at different levels according to the official guidelines for the implementation of the "national CBDRM programme under Decision 1002".

Following this approach, the Tra Vinh Department of Planning and Investment (DPI) with the PRC project enabled 19 communes in Chau Thanh and Cau Ngang districts to incorporate elements of disaster risk reduction and climate change adaptation into their SEDPs in 2014. The integrated planning activities were funded by the province (VND 410 million, USD 18,000) and the PRC (VND 230 million, USD 10,000), for the purpose of equipment, documentation, staff training, and the planning by working groups.

In each commune, the selection of suitable commodities was an important step in the planning process. Comprehensive risk assessments helped in the selection of appropriate livelihood strategies and provide a better orientation for the selection of solutions in the future. Disaster risk and climate change impact assessment tools helped to identify potential disaster and climate risks and informed the decisions on actions. Specific costs of reducing disaster risk and adapting to climate change were listed in prioritised (infrastructure) plans, and proposed for provincial budget allocation.

The planning process is often challenging, for example, because there are limited educational resources in local dialects, and there were difficulties in collecting information on climate change impacts. Therefore, Oxfam continues to invest in collaboration with DPI to strengthen technical capacities and develop information collection tools.

Nevertheless, it was demonstrated that using this participatory and integrated planning approach will contribute to effective implementation of national policies. The PRC as well as the "Building resilience to disaster and climate risks of men and women in Ben Tre province" project (RADCC) created a pool of staff trained in the integration of disaster risks, climate change and also gender into SEDP planning, and facilitated greatly community awareness raising. The approach is being promoted by Oxfam for replication in other provinces, where Oxfam and partners work as well as others.

This outcome supports the main goal of the national "CBDRM programme under Decision 1002" and it also resulted in proposals for provincial funding to increase local resilience. The approach is also promoted by Oxfam and other NGOs to be integrated in the forthcoming national Government guidelines on mainstreaming of DRR into SEDPs, a manual that would be a management tool for economic development and mobilization of local resources to serve the economic and social development goals of the community. A "Circular" on this is expected to be issued in early 2016 by the Ministry of Planning and investment (MPI) with the Ministry of Agriculture and Rural Development (MARD), and NGOs are promoting that their experience at the local level should be reflected in it.

Life in the Mekong Delta

3.8 CLIMATE CHANGE SEED GRANTS FOR CHILDREN AND YOUTH-LED INITIATIVES

Children and young people are particularly vulnerable to the impacts of climate variability and change, yet also are often important agents for change. Plan International and Live & Learn are providing small grants to enable young people to innovate in the face of climate change, coming up with new ideas to improve their communities' resilience.

- Funding youth-led initatives on awareness-raising, enabling children to take action on climate change, and technical solutions to climate change adaptation and reducing emissions.

15 provinces nationwide

The world is facing many challenges that place serious pressure on the environment and natural resources. Climate change is adding to these pressures, especially in Vietnam. Impacts of heat, unusual cold spells, storms, floods, droughts and sea level rise will cause, for example, salinization of water and degradation of soil, leading to crop failure, and will affect other economic sectors such as aquaculture, energy, transport and tourism. The most vulnerable to the effects of climate change are farmers, upland ethnic minority groups, the elderly, women, and children (Plan International Vietnam and Live & Learn, 2014a).

More than 50 percent of those affected by natural disasters worldwide are children and young people.

In addition, climate change is a major threat to local and national sustainable development, which has the potential to limit young people's economic opportunities and increase their vulnerability to abuse, exploitation and displacement. Climate risks increase pressure on the high unemployment levels and vulnerable working conditions of young people, as youth (of 15-24 years old) account for 50.4 percent of the country's unemployed (Plan International Vietnam and Live & Learn, 2014a).

However, children and youth[6] make up nearly half the total population of Vietnam (UNFPA, 2015). They often have fresh and innovative ideas and are eager to bring about change. Many examples in Vietnam and internationally have shown young people's interests in climate change and environmental protection actions. A weak voice and a lack of expertise and experience are common barriers to young people's involvement. Their involvement in national and local climate actions requires support, as they will be determining their own future with benefits to all.

Plan International and Live and Learn are supporting the Green Generation Network to provide seed grants to initiatives and projects for climate change and disaster risk reduction proposed and implemented by children and youth. The focus is on improving capacities of children and youth to respond to climate change across Vietnam.

The Seed Grant Management Board was set up with members from the Green Generation Network[7], to: communicate about the seed grants; select applications; provide training to children and youth groups on climate change, finance, and project management; support the children and youth groups during project implementation and help them to report; review progress and report to Plan International and Live & Learn; and to connect youth groups with different stakeholders.

In each funded initiative, youth and children are enabled to formulate and implement their ideas. The activities supported by seed grants include:

1. Raising awareness for children on climate change related issues
2. Enabling children to take action on climate change
3. Specific technical solutions for climate change adaptation and greenhouse gas emissions mitigation

[6] The UN Convention on the Rights of the Child defines a child as a person under the age of 18. Under Vietnamese law a child is a person under the age of 16. In Vietnam, a youth is generally considered to be a person between the ages 15 - 24.

The 'Making compost from straw' project, by the True Action club from the Vietnam Agriculture Academy

In the period 2013-2014, 187 children- and youth-led initiatives for climate change were funded in 15 provinces, reaching 14,125 direct beneficiaries, and spending about VND 600 million (equivalent to USD 28,000) (Plan International, 2015a).

These initiatives are very diverse, and range from activities such as setting up water filter tanks in poor areas and for remote villagers, to producing bio-fertilisers, organizing climate change education campaigns and school festivals, and other awareness raising events for children. The following are some specific examples (Plan International Vietnam and Live & Learn 2015a):

- Project "nursing green seeds" by Club 350 Vietnam aimed to raise environment and climate change awareness for primary students in Hanoi through green lessons on climate change and environmental preservation. 130 lessons were given to 4,000 students at ten primary schools. It ended with the festival "I love the environment", which was attended by 400 students and parents.

- "Green VLOG – Dear 2069" was a nation-wide video contest on the environment and climate change, implemented by Action for the Future (A4F). It encouraged youth to express their opinions on life and imagine a future world. All entries were uploaded on a fan page and 12 were selected for posting on Facebook, attracting 4,000 views and 1,400 likes.

- The "making compost from straw" project of the True Action club (in the Vietnam Agriculture Academy) received widespread acknowledgement thanks to its efficiency and environmental benefits. The authorities of Chuong My District (Hanoi) decided to integrate this model in its agricultural extension toolkit for local farmers.

- In the project "clean water for the Mong people in Chieng Hac commune" in Son La province, students from Thai Nguyen Agriculture and Forestry University taught and helped villagers to build nine simple filters to improve water quality and prevent diseases, especially after floods.

- "Bring green walls to class" is a project by Le Hac Que Tien in Ho Chi Minh City, aiming to show planting methods on walls to save space and to raise awareness and love for plants in primary students. It generated five green walls, published a picture book, and organised activities for 200 students in two primary schools, who practised planting and took care of their walls.

[7] Vietnam Green Generation Network ("The He Xanh") is a network of youth organizations and individuals who share concerns and are willing to learn and take action for a sustainable way of life. Green Generation is supported and coordinated by Live & Learn. It has connected to over 80 youth groups across the country.

- The project "No exhaust fumes" by Green Destination in Hanoi aimed to raise awareness of transport fumes and encourage the use of bicycles. In 2013 it developed a network of 54 green restaurants and cafes that committed to providing a discount to customers who use transport that does not generate exhaust fumes; in three months it attracted 2,000 participants.

- In Quang Tri province, the Climate Change Communicators, a group of trained children, led and trained other children on climate change adaptation and mitigation through games, films and other communication activities (Plan International, 2015b).

- Two students in Danang invented "Handi Glasses", which functioned as a virtual computer mouse to help people with disabilities use computers. With a seed grant, they successfully made 25 pairs of glasses and gave them to a local disability centre. With "Handi Glasses", people with disabilities can access news easier and thus become more socially engaged.

An active network of youth and children has been supported, and numerous very useful, diverse and innovative small scale activities were generated, reaching and engaging many children directly and yet for a small total amount of money.

Many vulnerabilities are reduced as capacities are enhanced through seed grants. Young people and children are coming up with climate change adaptation and mitigation initiatives that will contribute to the resilience of their communities, especially through enhanced knowledge and awareness. Young people and children get first-hand experience and are strengthening their voices and networks in solving climate change and disaster risks. Their voices have been heard by adults and also by policy makers.

The results of the seed grant projects should convince the authorities, community members, NGOs, and the private sector, that children and youth are inspiring and capable leaders given sufficient support and resources. Many of these community based initiatives can be scaled up.

Youths and children are inspiring agents of change. Nevertheless, for scaling up the obvious weaknesses and barriers to child and youth participation must be addressed, as there will be a great need for training and coaching and monitor of youth groups. The volunteers in the projects have limited time and funds available, and need to gain trust from community and local government. Supporting youth-based and child-centred community based initiatives can also help the resilience and sustainability of the wider communities.

Local authorities should develop support mechanisms at different levels to enhance child and youth participation in the decision making processes that affect their lives and future The "Spring Award 2014", was recognized by the Vietnam Environment Administration and who promised to upgrade it to a national award (Plan International Vietnam and Live and Learn 2015b).

The Handi Glasses project of two students in Danang, which invented glasses which allow people with disabilities to use computers (and thus access news and social networks) more easily.

"Before, they [people in the commune] didn't pay attention to climate change. When there was drought or a flood they just thought it was nature, no one cared about prevention. With the project we now recognize why weather is changing, that it is getting hotter and floods are more frequent. People really recognize climate change and how it influences their life. Now, they want to stop growing crops near the river because of flood risk."
Representative from Thanh commune and local project management board,
Dakrong District, Quang Tri province

4. COMMUNITY-BASED AGRICULTURE, AGROFORESTRY, AND SUSTAINABLE ENERGY INITIATIVES

4.1 INDIGENOUS KNOWLEDGE OF ETHNIC MINORITIES AND CLIMATE CHANGE ADAPTATION

Upland areas in Vietnam are characterised by fragile ecosystems, high poverty rates, and severe deforestation and soil degradation. The population of the Northern Mountainous region includes around 30 ethnic minority groups who live in a rapidly changing socio-economic environment, are increasingly affected by dramatic changes in climate, but also possess a wealth of knowledge about agriculture and weather. CARE and ADC have supported ethnic minority groups in Bac Kan province to unleash the potential of their indigenous knowledge.

- Using participatory methods to bring scientific and indigenous knowledge together; testing and analysing traditionally-used agricultural methods to inform community planning for resilient livelihoods.
- Integrating indigenous knowledge about climate-resilient livelihoods into Socio-Economic Development Plans.

Bac Kan Province

The Northern Mountainous region is one of the most vulnerable to climate change, with observed changes in precipitation, drought, floods and also cold snaps. Climate change projections for the Northern region suggest that both maximum and minimum temperatures will increase and will result in more extreme hot spells, more downpours leading to inundation, flash floods and an increased risk of landslides, as well as possibly prolonged droughts (Tran Thuc et al., 2015). Climate-related events have already caused heavy losses to agricultural production, resulting in some people, especially ethnic minority families, falling back into poverty.

Several (Government) poverty reduction programs were and are supporting ethnic minority development in the Northern Mountainous region, including "Programme 135" for communes with special difficulties (initiated by: SR Vietnam, 1998) and "Programme 30a" on poverty reduction in 61 poor districts (SR Vietnam, 2008), alongside poverty reduction programs and projects funded by official international development agencies and Vietnamese NGOs.

These programmes support social services (such as health, education), infrastructure, housing and livelihoods in particular. Amongst the support to rural livelihoods, many hybrid crop varieties have been introduced. However, a number of hybrid varieties are not adapted to local conditions, which sometimes leads to decreased or no yields.

The potential of indigenous knowledge is not fully utilised.

Ethnic minority groups in Bac Kan province are among the most vulnerable to climate change, as their livelihoods depend on agriculture and forestry and their incomes are low, but they also have rich indigenous knowledge related to agriculture and weather variability, which could be used to adapt to climate change. This knowledge is however not well documented and has not yet been used in a systematic way in agricultural planning and practices. There is also the risk of indigenous knowledge fading away as new hybrid crop varieties are introduced.

CARE and ADC are supporting climate change adaptation using indigenous knowledge in Bac Kan.

Bac Kan province developed a climate change response plan in 2012, which set out the needs and urgency to adapt to climate change in order to improve the well-being of poor and vulnerable groups. In that context, the Agriculture and Forestry Research and Development Centre for Mountainous Regions (ADC) and the provincial Department of Natural Resources and Environment (DONRE) have signed a Memorandum of Agreement to co-implement a climate change adaptation project in Bac Kan Province, with financial and technical support from CARE International in Vietnam.

Intercropping model, with ginger, medicinal plants and banana to adapt to drought on sloping land. Mai Lap Commune, April 2012

Local green bean adapted to severe drought, Thanh Van Commune, June 2012.

Due to the prevailing weather conditions, many rice areas in the Northern Mountains only have one rice season per year and fields are left fallow in the other seasons. The mono-cropping of maize on sloping land is facing reduced yield due to drought, and soil erosion is leading to the loss of nutrients. The growing of cash crops in the winter season is limited due to the cold weather and lack of rainfall. All of these contribute to the high poverty rate in Thanh Van and Mai Lap communes in Cho Moi district.

According to statistical data, the poverty rates in Thanh Van and Mai Lap communes in 2010 were 48.4 percent and 56.3 percent, respectively.

The overall expected outcome of the project was to increase the resilience of different ethnic minority groups in Thanh Van and Mai Lap communes, Cho Moi district, to different shocks and stresses, such as drought and gradual and seasonal changes of temperatures, through the use and promotion of indigenous knowledge of ethnic minority groups in agricultural planning and practice, combined with scientific information on climate change. The main target groups were the Tay, Dao and Nung ethnic minority farmers.

Production models using indigenous knowledge (IK) for climate change adaptation were determined through community participation.

Many local stakeholders were involved in the process, including the local authorities, and scientists provided inputs in community dialogues. This was done along with analysis of vulnerabilities and the capacity to respond to climate change. The participatory process involved several steps:

1. **Identify IK** for climate change adaptation (farmers map local varieties, approaches and techniques that have been used traditionally to cope with weather variability);
2. **Evaluate the effectiveness and sustainability of this IK** for climate change adaptation, based on farmers' experiences and with inputs from scientists;
3. **Test and analyse applied IK** (crop and tree varieties, approaches and techniques);
4. **Undertake IK-based adaptation models.**

The project also piloted a monitoring tool of climate resilient practices based on 5 categories of economic, institutional, socio-cultural, climate change and environmental criteria. A number of traditional, indigenous approaches and techniques have thus been used in different models.

The use of some local crops has helped to reduce the impacts of climate change on agricultural production.

For example, farmers growing a local green bean in one-crop rice fields improved household incomes because rice growing often relies on rain water while local beans can grow well in dry conditions. According to Report 38/BC-TTMN of June 2014 by ADC to the Provincial DONRE and Report 683/STNMT-KS of 25 July 2014 by DONRE to the Department of Meteorology, Hydrology and Climate Change of the Ministry of Natural Resources and Environment (DMHCC, MONRE), the income from growing green beans was 30-50 percent higher than that of growing rice. Similarly, intercropping of local banana with ginger (at an early stage) and medicinal plants (at a later stage) in upland fields instead of growing maize, has avoided crop losses due to drought, because banana grows well in upland fields while maize needs more rainwater to maintain productivity.

After two years of implementation, based on measurable achievements from the community-proposed climate change adaptation techniques and crops such as intercropped local green bean and local banana growing under drought conditions, the commune authorities integrated those crops into their Socio-Economic Development Plan for the period 2014-2015, to scale up into wider areas (see e.g.: DARD Bac Kan, 2014).

The Bac Kan province Action Plan to Respond to Climate Change has also been updated with an additional component, project 18, supporting the replication of successful climate change adaptation models, especially the use of indigenous knowledge combined with scientific knowledge in agricultural based adaptation practices (Bac Kan PPC, 2014). This additional component in the official plan provides the potential for allocation of public funding for replication, and therefore scaling-up and replication of the project results.

The findings in this project have also provided the basis for guidelines for identification of indigenous knowledge for climate change adaptation (Tran Van Dien et al., 2014), which should support scaling up and replication in other communities and provinces.

Key lessons from this experience are:

1. The participation of local farmers and community leaders, facilitation of the process and the methodology to get their inputs and solutions, is critically important for problem identification, intervention design and planning.
2. The combination of indigenous knowledge and scientific knowledge is important to build resilience to climate change.
3. The involvement of relevant policy makers at different levels (province, district, commune) throughout the project process is critical, to ensure their ownership of the project results, their support during the implementation and replication, and to be able to reflect positive results in local policies.

4.2 RECONCILING CLIMATE CHANGE MITIGATION, SUSTAINABLE LIVELIHOODS AND ENVIRONMENTAL RESILIENCE THROUGH AGROFORESTRY

Agroforestry - managing trees alongside crops - has been demonstrated to improve agricultural yields and promote resilience of crops to climate changes or extreme weather events. ICRAF aims to improve the performance of smallholder farming systems in North-West Vietnam by increasing the productivity of associated crop and livestock systems through agroforestry.

- Developing and trialling agroforestry methods using participatory methods.
- Building capacity of farmers, scientists, authorities and others in understanding and implementing agroforestry.

Yen Bai, Dien Bien and Son La provinces

Agroforestry is a traditional practice of many farmers, and was also promoted by the Vietnamese Government as early as the 1980s. Practical and scalable solutions to local challenges have been developed through interaction between farmers and scientists in processes of problem assessment, technology trials and assessment of the outcomes of such trials.

Both in Vietnam and internationally the benefits of agroforestry have been demonstrated.

For example, agroforestry can help protect from erosion, maintain soil fertility, increase the diversity of farming systems, and balance economic and environmental co-benefits (Simelton and Dam, 2014). Planting trees amid annual crops or with understorey contributes to increasing carbon-stock in land outside forests or in denuded forest lands (Mulia et al., forthcoming). Trees integrated with crops can reduce the yield loss in annual crops due to weather impacts and increase system resilience to climate variability (Van Noordwijk et al., 2014).

Agricultural livelihoods in northern and central Vietnam are directly exposed to droughts, flash floods (in the mountains), floods (in lowlands), cold and hot spells, dry winds, and typhoons and storm surges occur from July to October in the coastal region. Farmers are facing increasingly variable weather as well as losses indirectly related to weather, such as from pests and diseases.

Households with agroforestry practices have a shorter economic recovery period after multiple and frequent natural disasters than those without (Simelton, Dam, and Catacutan, 2015).

An important challenge in Vietnam is that policies are focused on agriculture or forestry, rather than agroforestry, and often promote monocultures. Agroforestry has disappeared to the background since the 1980s and currently there is limited knowledge among extension agents about tree selection and management, as few have been trained in agroforestry. Furthermore, permission from authorities is needed to integrate agriculture on forestland, or trees on agricultural land.

In addition, markets in remote areas are under-developed, with: unstable prices of agroforestry products; low prices of timber from planted forests due to distance and transport challenges; a lack of market information which may be compounded by language barriers faced by many ethnic minority people; and competition between local products and illegally imported products. In many localities there is an ineffective seedling production and distribution system. Access to credit is often limited, and there is lack of understanding of the gender dimensions of agroforestry and the potential that it holds for women farmers (Catacutan and Naz, 2015).

Further challenges relate to land access, availability and suitability. With small and scattered fields, farmers in north-central Vietnam feel that planting trees will reduce the available land for annual crops and will thus threaten their food security and livelihoods. Some farmers also face difficulty in getting permission for tree planting, especially

in protected zones ("special-use forest" or "protection forest"). Importantly, insecure land tenure due to the slow land allocation process has caused reluctance to plant trees.

Agroforestry aims at improving livelihoods through product diversification, whilst strengthening resilience of production systems to weather variability and impacts of climate change.

The focus is on sustainable and integrated farming systems with trees, crops and/or livestock feed, and replacing monocultures of crops and trees, especially in uplands. Agroforestry systems also increase carbon-stock (both within and outside forest lands), which contributes to greenhouse gas emissions mitigation. Agroforestry targets low-income smallholder farmers, unsustainable agricultural practices, and vulnerability to extreme weather events, weather variability and climate change. Agroforestry is action-oriented, with scientists interacting with local farmers and extension services at different levels. It also encourages interactions with policy makers.

The strong possibilities for increased and sustainable income from agroforestry have been demonstrated by different agroforestry practices all over Vietnam that are documented in the Spatially Characterized Agroforestry (SCAF) Database. SCAF is a central repository of agroforestry data collected by different institutions.[8]

Agroforestry for Livelihoods of Smallholder farmers in Northwest Vietnam (AFLI) aims to improve the performance of smallholder farming systems in North-West Vietnam through agroforestry.

This Community-based Climate Change Initiative is based on the "Agroforestry for Livelihoods of Smallholder farmers in Northwest Vietnam" (AFLI) project and the "Climate Change, Agriculture and Food Security" (CCAFS) research project of the World Agroforestry Centre (ICRAF).

The project aims to improve the performance of smallholder farming systems in North-West Vietnam by increasing the productivity of associated crop and livestock systems, leading to more diverse and sustainable production systems and better income from tree products. The trees in the system can also contribute to climate change mitigation. The project collaborates with the Northern Mountainous Agriculture and Forestry Science Institute (NOMAFSI), Forestry Science Centre for Northwest (FSCN), Tay Bac University (TBU), Department of Agriculture and Rural Development (DARD) in Yen Bai, Dien Bien and Son La province.

Mono annual crop practice with landslides in sloping lands, mountainous areas of northwest Vietnam

Longan-maize-fodder grass in Yen Bai province

Ceremony to sign transfer of research results on Son Tra from World Agroforestry Centre (ICRAF) to TAFOOD

[8] http://worldagroforestry.org/regions/southeast_asia/vietnam/products/databases/SCAFS

The approach includes the following steps:

1. developing participatory and on-farm **agroforestry trials;**
2. propagation of priority **agroforestry species** in small scale nurseries;
3. **exploring market access** and potential added value of tree species;
4. **raising local awareness and capacity building,** for example through field trips for farmers, partners, donors, scientists, and media; and
5. **monitoring and evaluatin**g the project's impacts.

It has so far conducted ten agroforestry experiments involving 58 households, in which strips of grass for livestock feed are introduced combined with different fruit/timber/commercial tree species, including longan, shantea, son tra, coffee, macademia, acacia, teak, plum and mango. It has 50 ha agroforestry demonstration trials involving one hundred farmers, and nurseries to supply 18 tree species.

The number of trees planted as of October 2015 is nearly 42,000 and another 50,000 trees are planned.

Two example landscapes in Na Ban (Son La) and Sung Pao (Yen Bai), consisting of 100 ha in total, are currently being targeted in collaboration with the provincial authorities, to scale-up the most successful agroforestry systems to the landscape level.

The project is identifying opportunities to add value to agroforestry products through market value chain analysis, improving processing techniques, and increasing product quality and quantity. For example, the processing technique to produce instant tea and concentrated extract from Son tra (Docynia indica) fruit were transferred by ICRAF to Tay Bac Tea and Special Food Company Limited (TAFOOD), a private company. TAFOOD now makes different products from son tra trees grown in the experimental plots, and this contributes to improving farmers' incomes and livelihoods.

Soil erosion significantly decreased in the experimental plots/trials. Measurements in 2015 showed that the amount of soil erosion in agroforestry plots with longan, maize and grass was much less than in maize monoculture. Measurements in 2015 in Son La province show the soil erosion was 17.38 ton/ha in agroforestry and 31.2 ton/ha in maize monoculture, ,and in Dien Bien province, 13.1 ton/ha in agroforestry and 40.6 ton/ha in maize monoculture.

The average stem base diameter of trees in the agroforestry experiments was 3.6 (± 0.37 cm), with canopy diameter of 126 (± 16 cm) and tree height of 181 (± 40 cm), which represents a considerably larger carbon stock compared to the baseline practice, i.e. maize monoculture (AFLI, unpublished data). This indicates potential contribution from trees to carbon stock, which in large scale will be significant for greenhouse gas emissions mitigation.

The concept of Climate-Smart Villages (CSV) was introduced in 2014 as part of the Southeast Asia CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

My Loi village in Ky Anh district, Ha Tinh province was selected as one of three CSVs in Vietnam, representing climatically exposed upland agro-ecosystems. The CSVs are sites were stakeholders participate in generating practical climate change adaptation and mitigation options that improve food security, nutrition and resilience. A number of climate-smart technologies and practices are tested for community and landscape levels, with the potential to be applied in other locations with similar stress factors. Key project partners are the provincial Department of Agriculture and Rural Development (DARD) and Farmers' Union, the Ministry of Natural Resources and Environment (MONRE) and CARE.

The project developed climate-smart agriculture interventions and prioritized those in consultation workshops with farmers and local leaders, based on hazard mapping, an inventory of existing farming systems, as well as cost-and-benefit assessments.

The workshops were co-facilitated by research staff and agricultural advisors, sharing information on impacts of extreme events, climate variability and change, and adaptation options, for example. Household surveys were used to assess household incomes, livelihood options and farming practices, food security status, exposure and sensitivity to climate change, and barriers and local preferences for tree planting and agroforestry adoption.

The results showed that agroforestry increased resilience to climate change and variability.

Households in My Loi village with trees and agroforestry have a shorter economic recovery period after multiple and frequent natural disasters compared to those without (Simelton, Dam, and Catacutan, 2015).

An important finding, when farmers selected the CSA priorities to be implemented in the climate-smart village, was that women and men had different priorities. Specifically, women preferred home garden development and livestock, men opted for forestry interventions, while intercropping was selected by both. Cost-benefit assessments of monocultures versus agroforestry system, show that agroforestry can generate up to ten times higher income within seven years, however annual crops are important for generating income while fruit and timber trees develop (Duong, Simelton, and Le, forthcoming).

To help monitor how much local weather deviates from weather forecasts, an automatic meteorological station is placed in the village and observations displayed every day. Being a test site in Ha Tinh province, the Farmers' Union and farmers learn to monitor the weather patterns and adapt their demonstration models (Simelton, Catacutan, et al., 2015).

Awareness-raising and capacity development activities included field trips and cross-visits for farmers, and collaborating with partners and media. About 50 university teachers have been trained on The Talking Toolkit (Simelton et al., 2013), a set of participatory tools for focus group discussions about climate variability, impacts and adaptation strategies. Among others, students in National University of Agriculture and Thai Nguyen University of Agriculture and Forestry are using part of the methodology for their graduation fieldwork. Moreover, after training and fieldwork using The Talking Toolkit, local partners, including extension and Farmers' Union representatives, are able to actively engage in fieldwork and research activities, such as documenting their demonstration models.

The winning logo for My Loi CSV combined the contributions of three boys from the village

Raising awareness of future farmers[9]

My Loi, the climate-smart village, needed a logo. Teachers at the commune schools talked about climate change and climate-smart agriculture with their pupils, and organized a logo competition. From more than 30 contributions, three logos were merged (see picture below), building on one boy's story about the importance of intercropping and mulching. Upcoming activities include setting up a vegetable garden at a kindergarten and a school, for educational purposes and for school lunches.

Prize giving ceremony for the winners of the logo competition during the CSV inauguration in My Loi

[9] See also http://blog.worldagroforestry.org/index.php/2015/06/10/future-farmers-in-a-climate-smart-village-create-symbols-of-hope/ Also see: https://youtu.be/vzduscCQ-fU

Awareness of climate change and its impacts and of the need to develop sustainable land-use system, both at plot and landscape level, is generally limited and varies between women and men.

In 2012 40 percent of the interviewed women and 66 percent of the men said they had heard about climate change. Hence, if farmers and leaders are unable to identify what stresses they will be exposed to within the coming decade(s), it is difficult to identify adaptation options (Simelton, Dam, and Catacutan, 2015). No-regret soft options, such as agroforestry systems that can easily be modified, are generally low risk.

Commune cooperatives and private sector operators are involved in the marketing of agroforestry products, and nurseries to produce tree seedlings. As extension workers and also mass organizations such as the Farmers' Union, Women's Union and Youth Union are based in the villages while researchers are not, they play crucial roles in disseminating information and developing adaptation strategies. Having both extension and Farmers' Union staff involved in research fieldwork has provided opportunities for farmers to seek advice directly.

To deliberate on issues confronting agroforestry and identify ways to rectify them, and to amend existing policies by highlighting agroforestry as a key government intervention, a policy dialogue between policy-makers and scientists was organized by MARD and ICRAF in 2015 in Hanoi (ICRAF and MARD, 2015).

It was agreed that MARD will set up a high level working group to develop an ODA proposal for support to agroforestry in Vietnam including agroforestry policy formulation; and ICRAF will review agroforestry-related policies and advise MARD based on available evidence that agroforestry is a potential solution for climate change mitigation, sustainable livelihoods and environmental resilience.

Introducing strips of grass and fruit/ timber/ commercial tree species in sloping lands

4.3 BUILDING COASTAL RESILIENCE: INTEGRATED COMMUNITY-BASED MANGROVE MANAGEMENT, DISASTER RISK REDUCTION AND CLIMATE CHANGE ADAPTATION IN THANH HOA PROVINCE

Coastal provinces are often heavily affected by climate change, experiencing land erosion and saline water intrustion, as well as being at a high risk from storms. Mangroves can increase the resilience of coastal communities to climate change by offering protection to the land where people live and work. CARE International in Vietnam has supported communities to utilise and manage mangroves to support against climate change and natural hazards.

- Building community capacity to mitigate climate change and natural disaster risks by effectively managing mangroves, by training community trainers, developing village resilience plans and integrating those plans into local SEDPs.

Thanh Hoa province

Da Loc commune in Hau Loc district and Nga Thuy commune in Nga Son district are two adjacent communes in Thanh Hoa province, at the two sides of the mouth of the small Len river as it drains into the East Sea. These communes are highly populated, with high poverty rates of 25 percent and 33 percent respectively (in 2011); many men are seasonal workers elsewhere so women take responsibility for local food production, and there is significant out-migration of young people. The land elevation is 0.8-2m above mean sea level (CARE, 2014a).

These two communes are heavily exposed to threats from the sea, especially typhoons and associated storm surges of tidal sea water. People also experience land erosion and saline water intrusion, abnormal rainfall, and more drought as well as heat waves in recent years, and all these hazards are intensifying with climate change and sea level rise.

The people of Da Loc and Nga Thuy communes suffered considerable damages and losses from Typhoon Damrey in 2005, including loss of human lives.

About 3.7 km of sea dikes around Da Loc failed, seawater swept several kilometres inland, villages and fields were inundated with saline water, many houses collapsed, and livestock were killed (Le Thi Hoa Sen et al., 2011; Buffle et al., 2011; Kempinski and Nguyen Kim Duc, 2009). Women bare most of the burden from the salinization of soil after typhoon Damrey, because they are mainly responsible for producing food for their families.

However, the 4.7 km of dikes around Da Loc that were protected by mangroves did not break.

Since 1989 international NGOs supported the (district) government to plant mangrove seedlings in offshore areas and the effects of Damrey demonstrated the importance of this. However, the survival rate of the mangrove seedlings was low. Most mangrove forests in Vietnam are designated as Protection Forest or Special-use Forest, with management boards of such forests often agreeing short-term contracts with households or communities to protect these forests. In Da Loc the district authorities engaged private contractors for planting mangrove seedlings. Planning meetings and training only involved local authorities, and community members had little knowledge of the arrangements. There was no budget for maintenance or protection, and inappropriate planting techniques also led to a low survival rate (CARE, 2014a: 21).

CARE International in Vietnam implemented Community-based, integrated mangrove management, disaster risk reduction and climate change adaptation.

Mangrove planting, 2009

Tree planting, 2009

Mangrove in 2010

CARE International initiated a community-based, integrated programme on mangrove management, disaster risk reduction and climate change adaptation that ran between 2007 and 2014, initially only in Da Loc and from 2009 also in Nga Thuy commune (CARE, 2014a & 2014b). CARE's overall aim was to build resilience in coastal communities, for which it has developed a multi-level "Community-Based Adaptation Framework" (CARE, 2014a: 62). This framework promotes actions from the household level up to the national level, to improve the resilience of livelihoods; to reduce disaster risks; to build capacities; and to address the underlying causes of vulnerability of social groups and communities.

CARE's specific objectives were the following (CARE, 2014a & 2014b; Buffle et al., 2011):

1. Strengthen **community-based disaster preparedness and climate change adaptation capacities and plans.**
2. Promote **livelihood models and strategies** that are more sustainable and resilient to climate change impacts.
3. Strengthen **community institutions** for sustainable disaster risk reduction and community-based mangrove management and use.
4. Mitigate disaster risks through community based **mangrove reforestation and management.**
5. **Promote replication** of community-based disaster risk reduction through mangrove reforestation by documenting and sharing lessons learned and supporting local capacity building activities.

As the local challenges were interlinked, CARE promoted an integrated approach to disaster risk reduction, natural resource management and climate change adaptation (see also CARE 2014a: 39).

The approach was participatory, and given the prevailing lack of women's involvement in decision-making, specific efforts were made to ensure their participation in planning and decision making. The primary beneficiaries of the project were the full populations of the two communes, with a total population of 14,551 people (3,650 Households; in 2011). 15 of the total of 20 villages were directly involved in both disaster risk reduction (DRR) and mangrove reforestation 2,805 households with 11,389 people; the other five villages were involved only in DRR (845 households – 3,162 people).

Numerous activities were undertaken, with very positive results, as follows (CARE, 2014b):

Disaster preparedness and climate change adaptation capacities and plans:

- The awareness and capacities of communities on DRR and climate change adaptation were enhanced, with 20 Village Resilience Plans (on DRR and climate change adaptation) developed. Women are more likely than men to be burdened with additional responsibilities when disasters strike and were actively involved in the planning process. Communities and households are now ready to protect their assets, support elderly or disabled community members, and follow agreed evacuation procedures in the event of a major storm.
- Training of trainers (ToT) courses on DRR and climate change adaptation were organised for local facilitators from both communes, Green Clubs (of youth) and school teachers. These trainers supported 11 contests, 22 training sessions, six campaigns, 34 meetings, and five study tours. This has led to behaviour changes of 60 percent of the total population in terms of preparedness for storms, for example regarding food and seed storage. The important role of mangrove protection for risk reduction was highlighted.
- In addition, DRR and climate change adaptation were integrated in the Socio-Economic Development Plans of both Da Loc and Nga Thuy communes, as the Commune People's Committees (CPCs), heads of villages and citizens jointly agreed on the need to strengthen capacity of government staff; infrastructure needs to mitigate impacts of floods and storms; the importance to replicate successful livelihood models to other households; and the importance of communication and awareness raising on DRR and climate change adaptation.

Livelihood models and strategies:

- With support from the external experts, local households and especially some leading women farmers identified, piloted and replicated new livelihood models that are more sustainable and resilient in the face of climate change. These strategies included the application of bio-fertiliser to replace chemical fertiliser; innovative approaches for growing rice and peanuts, using bio-fertiliser and limestone; a contract between the commune cooperative and a chili import-export company, providing a stable market for chili; as well as for example earth-worm raising (to feed chicken); improved duck and pig raising; and introduction of new maize varieties. For example, more than 3,000 households adopted the bio-fertilizer model since it was introduced, in the two focus communes and in other communes (CARE, 2014a). More than 100 households in the two communes adopted chili growing; and over 40 (mainly poorer) households adopted earth-worm raising.
- The Community Management Board (CMB) of Da Loc, 40 Green Clubs members 26 students of the Construction University, 20 members of Da Loc Youth Union and 70 students of Da Loc secondary school supported farmers to set up the livelihood models such as bio-fertilizers, and for example to maintain mangroves.

Strengthen community institutions:

- CARE trained both men and women on gender issues related to voice, access, and rights, and provided dedicated training to encourage active contribution of women in all stages of the mangrove management process. The Women's Union confirmed that these efforts were successful, as women participated more than men in program activities, in particular seedling nursery management, mangrove maintenance, awareness raising activities, and training. Several women and girls (from Green Clubs) became active trainers and were invited to provide training to other district such as Tinh Gia.
- Community based (mangrove) management boards (CMBs) were formed, which facilitated participatory land use planning, mangrove planting and maintenance, and protection of the young mangrove forests. These CMBs included several women. This process informed establishment of mutually agreeable regulations and benefit sharing mechanisms, by supporting community members to assess existing resources and project future growth. As a result, Da Loc commune was licenced by the district to manage the mangrove for a period of five years (2009-2014).
- Understanding and local support for the integrated approach was enhanced as "Green teams" composed of local youth were formed to promote resilience strategies. They worked closely with the CMBs and mass organizations, and developed awareness campaigns on mangrove forest-use regulations, disaster risk preparedness, and climate resilient livelihoods.
- Commune and village-level regulations for mangrove management and benefit sharing were agreed and issued in Da Loc (CARE, 2014a:62-68).

Mangrove reforestation and management:

- Over the period 2007-2014, 277 hectares of mangroves were planted in Da Loc commune and 181 hectares in Nga Thuy, actively involving hundreds of villagers. The tree survival rates are 70-90 percent, which is much higher than under the previous management regime. The average cost of mangrove planting is USD 1,000 per hectare, including all costs, which is cheap compared to other approaches (especially because of the use of local labour and increased transparency).
- Local authorities are confident that the dikes will now be able to withstand more powerful waves than those that destroyed it in 2005.
- The mangrove ecosystem is now allowing community members to harvest firewood as well as aquatic species, and produce honey. By 2014, some fishermen were able to catch the "cá còi" fish, providing additional income of VND 70,000-160,000 (USD 3.5-8) per day (CARE, 2014a).

Promote replication of community-based disaster risk reduction through mangrove reforestation:

- CARE also supported the Da Loc and Nga Thuy Community Management Boards (CMBs) on scaling-up disaster preparedness planning and climate resilient livelihood models to other communes in Nga Son District and Tinh Gia District. In particular, the Tinh Gia Vice Chairman of the People's Committee encouraged the replication in the whole district, and with the technical support from Da Loc Project Management Team more than 2,000 households across ten communes adopted bio-fertilisers and "Que" worm raising. In addition, SRD and CORENAM adopted the mangrove management mechanism and techniques in Hue province.
- Exchanges with several delegations took place and a final workshop was organized in order to share the successes and attempt to motivate others to follow the examples of these two communes, with representatives of provincial departments, Hau Loc and Nga Son district officials, officials from Nga Thuy and Da Loc communes, as well as farmers' groups, mass organizations such as the Women's Union, NGOs and TV and newspaper journalists.
- The experience in Thanh Hoa is well documented and lessons learned are still being shared widely, also through formulation and improvement of guidelines that support supporting local capacity building activities elsewhere.

In addition to the income and safety benefits, mangroves also serve as powerful carbon sinks. Thus, while originally designed for climate change adaptation, the project has important greenhouse gas emissions mitigation benefits (Le Thi Hoa Sen et al., 2011) that as such are not yet rewarded.[10]

Community and household resilience for climate-related hazards improved in Da Loc and Nga Thuy communes. As dikes are protected by mangrove, people and their assets are less exposed to the risk of storms and storm surges.

The mangroves provide some livelihood resources, and resilient livelihood models have been widely adopted, leading to higher incomes and reduced vulnerability. The reinforced and new community structures (including Community Management Board, Green Clubs), village disaster management plans, and regulations to manage mangrove forests, for example, have strongly reduced typhoon and storm surge risks. The communes have adopted many of the experiences proposals and successful pilots in their social-economic development plans.

The case suggests that successful mangrove forestry management, resilient livelihood development and DRR depend on a few critical ingredients of the integrated approach (CARE, 2014a):

- A participatory approach to reach widespread agreement on planning, implementing, decision-making and monitoring, involving local people and officials (at village, commune, and district levels), and which is informed by external expertise (from CARE, a University, etc.).
- Awareness raising of officials and citizens and promotion of models, in ways that actively involve specific groups such as youth (e.g. Green Clubs) and women (e.g. women who piloted livelihood models).
- Ongoing monitoring and learning, so that management systems can be adapted to new challenges, and to enable all people to share in direct and indirect benefits.
- Gender training and awareness raising, and active encouragement of women's participation in planning, decision

[10] Vietnam has systems of "payment for ecosystems services", rewarding communities, households or companies for forest protection, but those do not apply here. It also has policies and is developing capacities for implementation of REDD (Reduced Emissions from forest Degradation and Deforestation) under the UN Framework Convention on Climate Change.

making and implementation at the community level, as culturally defined gender discrimination continues, while women carry much of the burden of the effects of disasters such as typhoon Damrey and they provide most of the food.

In order to scale up these successes and apply those "ingredients", national programs and policy on climate change should support the role of communities in managing coastal resources and budgets should be allocated to this, as is already the case with the national community-based disaster risk management scheme (SR Vietnam, 2009).[11]

However, the budget related to such measures is very small. At provincial and district levels, officials can promote sustainability of community-based management systems by decentralizing decision-making authority and resources.

One sign of recognition of the successes is that Hau Loc district contracted three villages in Da Loc to manage the mangrove system for a period of five years.

These community management rights over the mangroves have been critical in ensuring the commitment of local communities. However, these rights are short-term whereas longer-term community rights are needed to sustain the success. The income potential from aquaculture practices that could destroy the mangrove is attracting interest of some people, so clear and equitable benefit-sharing mechanisms must be in place and applied for the benefit of all community members. The (new) local structures such as the CMB must be mandated to do that, but the villages and CMBs do not yet have official forest management authority and clear systems for accountability, and as CARE is withdrawing they may lack funding to support ongoing activities, even though attempts at local funding have been made. Strengthening and sustaining such structures depends on the district authorities and requires improved provincial and national regulation on community-based coastal land and forest use.

Through technical meetings CARE has informed VNFOREST (under the Ministry of Rural Development, MARD) of the experience in Thanh Hoa province, as a VNFOREST drafting team is working on national policies on "Forest Co-management" and "Coastal Forest Management, Protection and Development" which will be issued by MARD.

NGOs recommended that in the joint management mechanism (in "Forest co-management" policy) the full participation of local community in forest management, protection and sustainable development must be encouraged. Gender mainstreaming was recommended in both policies, specifically to ensure that a minimum number of women must be elected on forest management councils. The NGO recommendations have also been submitted to the Minister of MARD. These policies are expected to create a legal framework for community participation in forest management.

It is important that provincial and district authorities reflect these successes in policies and programs that affect other communities too, in order to be able to replicate the successes elsewhere through enhanced sharing, training and also investment.

Socio-economic Development Plans at these higher levels and in in other communes can reflect similar priorities to those in the plans of Da Loc and Nga Thuy commune. Mass organisations such as the Women's Union and the Youth Union elsewhere in the province should also share and spread the improved skills and lessons.

[11] The "Public Awareness Raising and Community-based Disaster Risk Management (2009-2020)" scheme, targeting the 6,000 communes in the country that are most vulnerable to disasters

4.4 INCREASED RESILIENCE TO CLIMATE CHANGE OF THE COASTAL COMMUNITIES IN MAJOR DELTAS

Climate change has a strong and varied impact on the lives of communities living in Vietnam's two major deltas, the Red River and Mekong deltas. Improved management of natural resources can help protect these areas from the effects of climate change and natural hazards, but requires the input of local people to be effective. Oxfam and MCD have been supporting a co-management system, whereby communities share responsibility for natural resource management with local authorities.

- Forming co-management groups between communities and authorities, based on mutual agreement and voluntarism, for natural resource management.
- Facilitating community-led planning for climate change adaptation.

Nam Dinh, Thai Binh, Hai Phong, Tien Giang, Tra Vinh provinces

The effects of climate change in the two densely populated major deltas in Vietnam, the Red River and the Mekong river deltas, include more extreme rainfall, unseasonal temperature fluctuations, sea level rise and associated saline water intrusion, and also tropical storms and associated storm water surges. This affects lives and livelihoods, agricultural land and fresh water sources, and there is an increase in coastal erosion and critical ecosystem degradation, including mangrove loss. Many livelihoods in the deltas are heavily dependent on natural resources, which are also vulnerable to development pressures and over-exploitation. But mangrove protects sea dikes, property, infrastructure and communities, and helps sustain livelihoods, including: fishing; shrimp, fish, crab and clam aquaculture; and the collection of aquatic materials. Natural resources and the ecosystem services that provide fresh water for irrigation and household use are being degraded or salinized as a result of over-extraction, which is compounded by sea level rise (Oxfam 2015a).

It is now widely accepted in Vietnam that control and management of common property natural resources must be decentralised to local levels to be effective, as the 'buy-in' by natural resource users can help compliance with regulations.

Mangroves and other coastal zones are often protected areas, e.g. "special use" forests where use restrictions and central management applies. But because of open access, mangroves, mud-flats and fishing grounds are being over-exploited, especially by poor and landless households. The human and financial resources required to effectively monitor and control natural resources by centralised agencies is also beyond the means of the central or provincial authorities. The degradation and loss of these natural habitats will continue to increase the vulnerability of the community to climate change. However, shifting to a rights-based system in the form of co-management has been shown to be a work in the Vietnamese context. Co-management is possible through a forest protection contract as stipulated in Prime Minister Decision 178/2001/QĐ-TTg; MARD Circular: 80/2003/TTLT/BNN-BTC; and related local regulation.

Oxfam and the Centre for Marinelife Conservation and Community Development (MCD), together with provincial authorities and other counterparts, implemented the "Partnership for Equitable Resilience to the Impacts of Climate Change of the Coastal Communities in Deltas of Vietnam (PRC)" between 2012 and 2015.

The PRC aimed to increase the resilience of 51,000 of the most vulnerable people, especially women, living in coastal communities affected by the impacts of climate variability, climate change and natural hazards. It operated in 31 coastal communes in five provinces in the Red River and Mekong River deltas (Oxfam, 2015b),

The PRC:

- raised awareness of community members and local authorities on climate change, vulnerability and climate change adaptation;
- supported participatory planning processes with local authorities, to integrate disaster risk reduction, climate change adaptation, and natural resource management in local plans;
- supported the implementation of climate resilient livelihood measures targeting the most vulnerable households;
- and shared lessons and joint activities on improved on improved disaster risk reduction, climate change adaptation, and natural resource management practice and policy in Vietnam with other Community-based Climate Change Action Grant (CBCCAG) partners.[12]

Co-managing coastal natural resources on Con Chim island

Mangrove protects Con Chim Island in Tra Vinh province from coastal erosion and storms and has important economic value for the 78 households that live on the island. Some coastal land is eroding, which is believed to be caused by sand mining in the river bed just in front of the island. The people living along the Con Chim river have witnessed the impacts of climate change, including salinization, drought, prolonged heat, and river bank erosion.

Some people use destructive methods in fisheries and aquaculture, which is threatening to wipe out aquatic resources. Regulations banning the use of these methods were issued, but locals explain that law enforcement is not effective; when people see the Fisheries Resource Protection Task Force, they will stop using these methods or leave the area, but only temporarily.

In-depth problem assessment engaged local communities in coordination with local authorities and other stakeholders. A co-management group was formed in April 2014, based on mutual agreement and voluntarism. This was the basis for formulation of a community convention on the use and protection of the common mangrove forest and aquaculture resources in the Con Chim River, which was approved by the district People's Committee in September 2014.

A forest protection co-management contract is consistent with national and local regulation. The contract up to 2015 is held by a representative of the 71 households who have mangrove on or adjacent to their land. Each household receives up to VND 500,000 ha/year (approx. USD 23) for forest protection and is also allowed to collect dead wood and aquatic products. Local people expressed their determination to implement the provisions of the convention, and to work together with the authorities to continue their intensive advocacy campaigns across the rest of the commune, to protect the natural resources.

In and around Con Chim island there are signs of recovery of many aquatic species ("ut" fish, star gobies, sea crabs) and expansion of mudflats, which helps fisheries and forest restoration. These positive results have attracted the attention and support of provincial authorities, which bodes well for continued co-management of natural resources.

[12] This refers to other NGOs that also received grants for similar purposes from Australian Aid.

According to the PRC evaluation (Oxfam, 2015c), more than 52,000 women and men in these communes have become more resilient to climate change effects.

The PRC introduced "Participatory Capacity and Vulnerability Assessment" in all 31 communes, and with the Women's Union in the lead it applied "Participatory Action-Oriented Training (PAOT)" to establish a network of 528 village facilitators. As a result, there was a 28 percent increase in participation of women in local planning processes, compared to the situation before. These facilitators supported 8,372 households to undertake 58,122 climate change adaptation activities. Over 3,000 households were directly supported to implement one of the resilient livelihood options that were introduced by the project (see Figure 5). The average income of participating households almost quadrupled (Oxfam, 2015b).

Figure 5. Livelihood options supported (PRC project) (Oxfam, 2015b, 2015c)

Red River Delta		Mekong River Delta	
Livelihood Option	Households	Livelihood Option	Households
RVT (salt intolerant) rice	447	Chilli production	69
Organic vegetables	12	Tomato production	15
Freshwater fish raising	78	Peanut production	20
Biological bedding (pig raising)	145	Improved corn seeds	45
Guinea fowl	43	Goat raising	1074
Mushroom	34	Cow raising	724
Crab raising	9	Biological bedding (chicken raising)	151
Pig raising	220	Biological bedding (duck raising)	11
		Clam production	41
Total	**988**	**Total**	**2150**
237 women headed households, 102 include people living with a disability		577 women headed households, of which 100 include people living with a disability; mainly Khmer households.	

The PRC built capacities on participatory planning of 562 local authorities' staff (including 168 women), and capacities of local people on livelihood development and natural resource management, including coastal and marine natural resource co-management approaches.

There was demonstrably higher awareness of climate change risks at the end of the project, and increased understanding and experience in managing and adapting to these risks. Community conventions for co-management of natural resources were developed in four communes and approved by the respective District People's Committees and contracts for co-management were agreed (see also the Box on Con Chim Island). This helped households to protect as well as use aquatic resources as a livelihood source. Tourism opportunities to take advantage of the landscape and environment, to diversify the income for local people focusing on "tourism and homestay" were also explored.

In addition to the work in the 31 targeted communes, local and national workshops and exchange visits were organised by Oxfam and MCD, also in collaboration with other NGOs.

Documents were disseminated (beneficiary stories, posters, brochures, manuals, research reports) and different media were used to share lessons (including national television and district radio), targeting the general public, policy makers, practitioners, also at the international level. Joint advocacy efforts with other CBCCAG partners (SNV and CARE International) at the national level is still happening (late 2015).

The PRC was successful in reducing risks and improving livelihoods of vulnerable households.

Vulnerabilities and exposure of low-income households to climate related shocks and stresses were clearly reduced. Women's involvement and leadership increased. This was realised through participatory approaches, pilots and demonstrations of climate change adaptation activities and through adjustments to local planning processes and plans. The inclusion of vulnerable groups, gender equity focus, and multi-stakeholder partnerships were critical reasons for the success. Capacity building, of local officials as well as citizens was essential. Reaching agreement on community conventions and contracts on co-management of natural resources has also contributed to higher incomes and increased equity in accessing natural resources, but the contracts for local management and benefits are still short-term.

Local level social-economic development plans were strengthened as broad consensus was reached between citizens and authorities on measures for disaster risk reduction, climate change adaptation and natural resource management.

This was particularly observed in Tra Vinh province due to the positive participation of Department of Planning and Investment and other provincial stakeholders. Close involvement of such a department can be seen as a foundation for replication of mainstreaming of climate change adaptation and co-management of natural resources in provincial, district and commune levels plans (Oxfam, 2015c). It was recommended that Oxfam and MCD continue their joint advocacy at the provincial and national level, together with other CBCCAG partners, because joint evidence-based advocacy is more likely to be effective in achieving (national) policy changes to support community-based climate change adaptation and policies that enable co-management of natural resources. A close and concrete relationship with ministries must be established for this, especially on the back of the considerable success of the PRC (Oxfam, 2015b).

Fishing with a proper net in order to allow the smaller and younger specimens to escape, to preserve diversity, a rule in the co-management model agreed by all community members

4.5 APPLYING THE SYSTEM OF RICE INTENSIFICATION (SRI) FOR CLIMATE CHANGE MITIGATION AND ADAPTATION

Rice production is a primary livelihood activity for many households across Vietnam, but the effects of climate change are having a negative effect on traditional yields. SNV has piloted a system of rice intensification which reduces water, fertiliser and chemical use, making crops more resilient to diseases and extreme weather whilst also reducing the impact of rice production on the environment.

- Developing customised effective and environmentally friendly rice cultivation techniques.
- Awareness-raising and training on SRI techniques for men and women farmers, including training of trainers.
- Developing market linkages for 'green' rice.
- Building the capacity of local agencies who work with farmers to implement SRI.

Quang Binh, Binh Dinh and An Giang provinces

Rice production is the main agricultural activity in Quang Binh and Binh Dinh provinces in central Vietnam, providing 61 percent of total agricultural income or about 25 percent of total household income. However, rice yields are low in the central region, which have been attributed to storms, floods, prolonged cold, lack of insect resistant and drought tolerant varieties, and low prices for rice, limiting farmer interest and investment in rice growing (World Bank, 2010). Climate change may have a significant impact on rice production, because of higher probability of floods in the rainy season and increased risk of drought in the dry seasons. Rice production systems are also a major contributor to greenhouse gas (nitrous oxide and methane) emissions in the agriculture sector (IPCC, 2006). The Government set the goal to increase agricultural production by 20 percent; to reduce greenhouse gas (GHG) emissions by 20 percent; and reduce poverty by 20 percent by 2020 (MARD, 2011).

Sowing the Seeds of Change: SNV promotes sustainable rice production.

At the inception of the SNV project "Sowing the Seeds of Change - Community-based Climate Change Mitigation through Sustainable Rice Production" (SSC) was funded by the Australian Government as part of the Community Based Climate Change Action Grants Program. At the inception in 2012, some important concerns were identified by local farmers, including: low market prices for their rice; major cultivation challenges (pests and diseases, lack of water, changing weather including extreme heat as well as cold spells); and the need for policies in support of rice production. The project's baseline report (Nguyen Duy Linh et al., 2013) demonstrated over-application of chemicals and fertiliser by local rice farmers, contributing to greenhouse gas (GHG) emissions and environmental degradation.

The SSC project introduced the System of Rice Intensification (SRI) to farmers in Quang Binh and Binh Dinh provinces. It aimed to increase small holder farmer incomes, reduce GHG emissions from rice production, and strengthen local capacities to deal with the climate change.

SRI offers options for poverty reduction, climate change adaptation and GHG emissions mitigation, and SRI could thus contribute to achieving national policy aims. SRI techniques reduce water, fertiliser and chemical use. According to research by the Institute of Agricultural Environment (MARD) in Quang Binh, Binh Dinh, and An Giang provinces, SRI can reduce around 4 tons of CO¬2 per ha per crop, the SRI rice is stronger than traditional rice and it is more resilient to diseases and extreme climate events. The project:

1. **applied SRI** for small scale rice production systems;
2. developed **market linkages** and "green rice" market opportunities for SRI rice;
3. developed **renewable energy** options, using rice residues; and
4. created a **knowledge base** and advocated for a **supportive policy environment** for small holder rice producers.

All project activities were conducted using an inclusive and participatory approach: activities were discussed and designed with stakeholders at all levels, ensuring relevance; and local ownership, sustainability and gender were mainstreamed, ensuring implementation approaches and activities supported the empowerment of women beneficiaries and implementers.

Key partners were the Departments of Agriculture and Rural Development (DARDs) and the Women's Union of Quang Binh and Binh Dinh provinces. The Department of Plant Protection (DPP) under the Ministry of Agriculture and Rural Development (MARD) provided technical advice along with SNV, in order to transfer SRI techniques to local partners, including formulating a technical guideline. The Soils and Fertilizers Research Institute (SFRI) did the soil research, then advised which kind of fertilizer should be used in areas in Quang Binh and Binh Dinh.

The project built the capacity of local agencies which work with farmers on the implementation of SRI techniques and raise community awareness of climate change adaptation and mitigation.

Specifically, awareness was raised about advantages of SRI techniques through meetings and training sessions, as key farmers were elected into groups by local people, including both women and men. Training of trainer courses were held for key farmers and local staff by the DPP with the Women's Union. SRI techniques were tested in the field, using the farmer field school model, organized by local cooperatives with technical support from Department of Plant Protection, and included evaluation of the test results and planning for application of crops (DPP and local people). Study tours and workshops encouraged SRI expansion into other areas (SNV and local authorities). The project also applied the climate risk assessment approach for climate change adaptation planning, including a climate proofing checklist, to identify climate impacts and risks and adaptation measures.

As a result of testing and applying SRI techniques, farmers and rice production systems became more climate resilient and GHG emissions reduced substantially.

SRI was applied successfully for over five crops from December 2012 to May 2015. Approximately 4,000 ha of SRI crops were planted in the project area and in other parts of these provinces farmers also started to adopt the techniques. A number of research reports show the benefits of SRI, through measurement of GHG emissions, and research on the resilience, economic benefits, and the quality of SRI rice (SFI, 2013, 2014a, 2014b). Rice crops are demonstrably more resilient to climate extremes, pests and diseases.

Experiment of sowing density from left to right: 34, 42, 70, 140 kg/ha.
Phuoc Son, Binh Dinh province, March 2015

GHG emission measurement in Quang Binh province

Large scale SRI rice fields, winter-spring crop.
Tay An, April 2014

Incomes of around 9,000 farming households increased by approximately 15 percent.

SRI yields were 15-20 percent higher in unfavourable weather conditions when compared to traditional practices. According to a report from Quang Binh and Binh Dinh DARD, applying SRI saves input costs of USD 120-150 per ha per crop, saving 40-50 percent on seeds, 15 percent on chemical fertilizer, reducing irrigation by 2-3 times or 25-30 percent of the water used for traditional rice growing (ref DPP Annual Monitoring Reports), and reducing the application of pesticide by 2-3 times. Productivity increased about 0.3 ton per ha, supporting a higher income for farmers of USD 200-450 per ha (Ngo, 2014). The lower investment cost and higher income helps farmers to recover their lives more quickly after natural disasters. SRI also saves on labour costs and time, especially women's labour of rice planting and pesticide spraying. In addition, health of rice consumers and also farmers benefit from less pesticide use; SRI was certified for food safety as tests showed a low level of chemical residues. See also Figure 6 and the box on page 67.

Figure 6. Profit comparison of SRI and traditional farming per hectare in My Loc Thuong, winter-spring crop 2014-2015. (Mr Le Xuan Tu, Director of Quang Binh Department of Plant Protection, 2015)

Categories	SRI Farms	Normal Farms
Productivity (kg)	7,640	7,410
Paddy price (VND per kg)	6,500	6,500
A, Total revenue (VND)	49,660,000	48,165,000
B, Total cost (VND)	28,759,000	32,950,000
Profit (A-B) (VND)	20,901,000	15,215,000
Compare profit between SRI farm and normal farmers farms (VND)	5,686,000	

There were also climate change and environmental benefits. An average reduction of 4 ton CO_2/ ha/crop was measured, including a reduction of 25 percent of methane and nitrous oxide (CH4 and N2O) emissions.

Three straw baling machines were introduced, enabling 720 ton of rice straw to be used for mushroom farming and livestock feed instead of being burnt. A rice husk briquetting machine was also supported, in Quang Binh province, to turn rice husks into briquettes, reducing rice husk dumping and the use of coal for cooking. A contract was made with the Quang Binh Beer factory to supply rice husk briquettes.

Along with this, a supply chain for gasifier stoves was encouraged and 800 gasifier stoves were commercially distributed, reducing indoor air pollution caused by cooking with traditional stoves. SRI also reduced chemical fertilizer and pesticide use which limited water and soil pollution. In addition, a SRI rice value chain was encouraged. Six farmer groups and four rice millers signed supply contracts and for SRI rice and with retailers respectively, and SRI rice is being sold in twelve shops, with retailers conducting SRI branding and sales.

The SSC project developed and documented knowledge and used that successfully in advocacy and awareness raising.

Farmers and local authorities are informed about the causes and impacts of climate change, in particular on rice systems, and they have increased capacity to adapt to climate change and thus contribute to achieving the targets of the provincial climate change action plans. The Women's Union in these provinces have actively raised awareness about SRI, gender equality and renewable energy, supporting both women and men to create an enabling environment for women's participation in SRI, renewable energy technologies and in the community. Technical guidelines and research reports were published and widely shared. Knowledge exchanges took place with MARD and government agencies in the agriculture sector, the Women's Union, NGOs and international donors. Subsequently, SRI has been

integrated into key policies and programs including the crop cultivation restructuring programmes in the provinces, which are being implemented and include agreements to scale up the application of SRI, as the DARDs of Quang Binh and Binh Dinh province have agreed to scale up SRI over the next five years to 10,000 ha (implementing Prime Minister Decision 899/QĐ-TTg of 2013 about "Restructuring agriculture sector towards improving value added and sustainable development").

SRI has economic and social benefits and is effective for both climate change adaptation and mitigation.

Vietnam has over nine million rice farming households cultivating more than seven million ha of rice-crop per year and only an estimated 12.7 percent of rice crops use some SRI techniques[13], so there is considerable potential for increasing the application and benefits of SRI.

Success of the SSC project is explained by the stress on awareness raising of local people, of climate change and the multiple benefits of SRI, the fact that local people were actively involved in project decision as this increased ownership and empowerment. The focus on women's involvement to ensure implementation of SRI was effective, as they are responsible for many aspects of rice growing. Concrete evidence of the benefits of SRI, in the field is the best way to convince farmers to change their farming practices.

Practical challenges that need to be addressed in scaling up SRI include the quality or lack of irrigation systems which prevents alternate wetting and drying. Some rice fields are uneven which makes application difficult, and many famers have fields scattered over different places which makes water management difficult.

SRI is potentially one of the effective solutions to reduce GHG emissions from rice cultivation (Mai Van Trinh et al., 2013) whilst it increases farmers' incomes and has other benefits. MARD is planning to upscale SRI in period 2016-2020 as per the draft climate change adaptation plan of the agriculture sector. It is also recommended that SRI should feature as a poverty reduction solution in annual social-economic development plans at different levels. Investment is particularly needed to improve irrigation systems, and for raising awareness of farmers and local authorities of the benefits of SRI through practical ways.

SRI rice and non-SRI rice in Quang Binh province

"Because of the suspicion of local farmers about the feasibility of the SRI model, the first crop Winter-Spring 2013-2014 had only 100 registered households with 30 ha of SRI rice, but this first crop had a surprising result, as the productivity increased from 7.4 ton/ha to 7.6 ton/ha, while it saved input costs. This success of the SRI model made farmers very enthusiastic. According to last crop result the productivity in SRI models is about 230 kg per hectare higher than normal, while input costs are lower by about VND 4 million compared with traditional methods. This is because of the volume seed is reduced from 140 kg/ha to 60 kg/ha; the use of chemical fertilizer reduced from 120 kg/ha to 80kg/ha; and also the use of pesticides reduced. The application of 'alternate wetting and drying' reduced the need to irrigate from 13 to 7 times/crop, saving about 115,000 VND/ha/irrigation.

Because of these benefits the number of households registered to apply SRI technique is increasing continuously. At the moment My Loc Thuong has 725 households applying this technique on 150 ha of rice fields. For the remaining 118 ha, My Loc Thuong cooperative is planning to repair the irrigation systems so that they can also apply SRI for the next crop. My Loc Thuong Cooperative is confident they can connect directly with rice companies (taking out the middle man) from Quang Binh to deliver high quality rice at a higher price, collecting around 300 tons of paddy each year. There are also plans to obtain the VietGAP certificate for My Loc Thuong rice, which will be a good opportunity for us to access markets outside the province and bring sustained income from rice for local farmers."

Mr Vo Van Thang, Director of My Loc Thuong Agriculture cooperative

[13] Based on: http://nongnghiep.vn/cung-co-phat-trien-he-thong-ha-tang-tham-canh-lua-cai-tien-sri-post135816.html

4.6 AGRICULTURE-BASED LIVELIHOODS OF THE POOR AND CLIMATE CHANGE ADAPTATION

Support to sustainable rural livelihoods has taken on an extra dimension as the seriousness of climate change has become widely acknowledged: rural livelihoods have to become climate resilient (CARE, 2013; Chapter 2, and Annex II). Various organisations, including SRD, World Vision, SCODE, the Vietnam Women's Union and ADRA have supported the development of climate resilient livelihood options across the country.

- Developing alternative cropping patterns and agricultural techniques which make crops more resilient to changes in the weather and environment.
- Providing financial services to enable local people to develop climate resilient livelihood alternatives.
- Introducing community-based waste management to reduce the strain on natural resources.

Thua Thien Hue, Thanh Hoa, Cao Bang and Ha Nam provinces

Agro-forestry and agriculture practices must adapt to more variable and more extreme weather; different parts of Vietnam are now suffering unseasonal or unusual droughts, heat waves, rains, storms or floods, or all of those in the same year. Whilst farmers have had to deal with weather variability for the entire history of agriculture, climate change demands that innovation is stepped up.

All sections in this chapter demonstrate cases in which through different community-centered approaches innovations are taking place, with a focus on resource poor farmers.

Agriculture, livestock keeping, forestry and aquaculture are central to the lives of the majority of the poor in Vietnam, and those livelihoods are particularly vulnerable to the effects of climate change. Solutions are often specific to an agro-ecological region and developed based on local, specific knowledge combined with scientific ideas (see e.g section 4.2). Innovations in some regions can also be common practices somewhere else – for example, farmers from different regions exchanging seeds between them is a widely known method to increase crop-biodiversity and increased resilience.

Several NGOs have worked with experts, gathered evidence and developed guidance materials for specific regions with suggestions for modified cropping patterns, livestock keeping practices, etc. For example, Le Anh Tuan et al. (2013) assessed 9 climate change adaptation livelihood options that were proposed in the Oxfam project in the Mekong delta:

Livestock rearing models:	**Vegetable growing models:**
1. Fattening cows	1. Growing corn intercropped with vegetables and rice
2. Raising goats for meat	2. Growing winter melons, cucumbers, bitter melons, watermelons and tomatoes using agricultural mulch
3. Raising broiler chicken on biological pads	3. Growing watermelons
4. Raising ducks for eggs on biological pads	4. Growing peanuts
	5. Growing leafy vegetables (chinese cabbage, mustard greens, morning glory) using net houses

Most of these models needed further refinements before being suitable options that could be explored with local farmers.

AMDI and the Vietnam Red Cross cooperated with US experts in the development of "standard operating procedures" for "rice-shrimp nursery adaptation" and "pig production on biomatress" (Mekong ARCC, NoDate.a&b), which are very straightforward, clear and practical guides that can be used in village extension.

Following are some additional examples of climate-resilient livelihood models or options, from different parts of Vietnam and members of the CCWG, with some specifics aspects explained.

SRD supported farmers in thua thien hue province to test and develop Drought tolerant water melon cultivation on fallow rice fields.

Hai Duong is a coastal commune in Huong Tra town, Thua Thien Hue province. In 2009, prior to the start of a project by SRD, there were 7,839 inhabitants, and a poverty rate of nearly 11 percent. Hai Duong farmers mainly grow paddy rice (in total 70 ha in the commune, in 2009), and many practice aquaculture (80 ha). This local production is often affected by heavy rain and storms, high tides, saline water intrusion and coastal erosion, which causes instability and sometimes a complete loss for farmers. Moreover, the residential area along the coastal lagoon is also sometimes damaged.

Climate change is affecting the life of thousands of local people in the coastal area. In the past 5 years especially, farmers did not get stable irrigation water, and the rice fields became more saline. They could grow only one rice crop per year on 46 ha of the 70 ha paddy land (the winter-spring crop).

During the summer-autumn season most paddies stayed fallow, strongly affecting income and food security in the commune.

The households with aquaculture faced difficulties too, as profit from raising giant tiger prawn requires brackish water with a stable salinity level, but extreme rainfall made it too sweet and sea bank erosion and saline water intrusion made ponds too salty. Harvest failures led to high indebtedness of several families.

Water melon on fallow rice land was considered a potential alternative and was tested on an area of 1.6 ha in 2012 with 18 households, during the summer autumn season.

SRD, a CCWG member, and local authorities provided help in changing the cropping patterns, to include heat, drought and salinity tolerant crops, including water melon. The households were trained in cultivation techniques and monitoring of the test. A technical officer of the Agriculture, Forestry and Fisheries Extension Station in cooperation with the Board of the Thai Duong Cooperative and SRD project staff provided technical guidance on planting and pest monitoring. The watermelons need especially organic fertilizer to improve soils, which also benefits the next (winter-spring) rice crop on the same field. Lime was also needed on the salinity affected soils, to combat diseases and to increase the ability of plants to absorb nutrients.

The test showed positive results and water melons were harvested after 54-60 days. The average yield was 450 kg/sao[14].

Households sold them to traders (VND 5,000/kg) or in the local market (VND 6,000/kg). In later years it was replicated in fallow rice fields as well as sandy areas near the coast. In 2013, 17 households grew a total area of 1.7 ha of water melon. With a slightly higher yield and slightly lower price than 2012 the average income was (again) about VND 2 million/sao or VND 4 million for each household (=USD200), not considering the costs (which is mostly labour), taking a period of three months from land preparation to harvesting). In 2014, 21 households grew water melons on more than three ha; the productivity of 20 ton/ha was about double that in 2013; and the selling price was up by about 50 percent, so 2014 was a very good year for the farmers. In 2015 the area and number of households was the same as 2014 but productivity as well as price were similar to 2013.

[14] Sao is a unit of measurement, equivalent to 500m^2

Mr Nguyen Dang Hoa, Hoang Hoa district, in his field of peanuts

Le Huy Cuong, head of the agriculture department in Hoang Hoa district, said, "The model helps our farmers cut down their production costs, improve soil fertility, and increase their income, which is sustainable and adaptive to climate change. We hope those living outside CATREND project's working areas can apply the technique as well." The department is planning to bring the peanut model to all communes of the district, for which documentation has been prepared.

Ms Vien Thi Doc is happy with the high productivity of her peanut crop

World Vision supports poor farmers to Improve peanut cultivation techniques.

Hoang Hoa and Quang Xuong are coastal districts in Thanh Hoa province, and have high rates of poverty. Local livelihoods are dependent on agriculture, but fields are small, and many are degraded and salinised. There is a poor irrigation system so farmers lack fresh water, but rice is nevertheless the dominant crop. In addition, peanut is grown on a large area, especially by the poorer farmers. Profit from peanuts is depressed because of the cost of seeds, fertilizers, pesticides and water. Impacts of climate change are perceived locally, with low rain and water shortage for peanut growing causing that in 2014 and large area could not be cultivated, and pest infestations also explained by unusual weather. Farmers used to burn the peanut straw and other plant debris, emitting smoke that is a local nuisance and greenhouse (GHG) gases that contribute to global climate change.

World Vision International's CATREND project (Central Areas of Thanh Hoa Province Resilient to Natural Disasters; see also section 3.6) (WVI, 2014) supports local people and aimed to increase poor farmers' income, identify agricultural techniques that are appropriate in this situation of water shortages, and minimize GHG emissions at the same time. The project introduced (locally) new peanut growing techniques, with field workshops for farmers, that covered sowing, transplanting, irrigation, bio-fertilizer application; pest and disease control; and harvesting. In the spring season of 2015, 200 (mostly women) farmers participated in training. In particular, the use of straw and other plant debris as mulch and increasing the distance between plants compared to traditional practice made a difference.

Farmers net income from peanuts went up by half. Yields increased by 5 to 10 percent.

Farmers reduced the amount of seeds used by 30 to 40 percent compared to the traditional cultivation methods; they reduced chemical fertilizer use by 40 to 70 percent; they reduced water use by 20 to 30 percent; and pests also reduced as straw protected the peanut plants and less pesticide was used. In addition, there was considerably less smoke nuisance and GHG emissions.

The Women's Union and ADRA facilitated community development funds for livelihood models, including pig rearing and biogas production.

Bao Lac district in Cao Bang province is included in the list of the 62 poorest districts of Vietnam. The economy is predominantly agricultural with the cultivation of some basic and low-value food crops such as rice, maize, and cassava; and animal husbandry (cows, goats, pigs and chickens). The mostly ethnic minority population in the district is facing major livelihood challenges, as the district is very mountainous and climate change is causing increasing weather variability. There are reports of: landslides and flash floods during heavy rain that seems to be increasing in the wet season; drought (less rain in the dry season) and water shortages for people, animals and crops; high temperatures associated with the spread of diseases in people and animals as well as crop pests; and cold spells that caused extensive damage to rice production and livestock.

In partnership with the Women's Union at commune and district levels, ADRA set up some community development funds in villages that provided support for income generation models, including pig husbandry. In consultation with villagers, energy models were also assessed and pilot biogas digesters were installed, supported by the community development funds as well as contributions from households. Training on pig husbandry as well as other agricultural topics was also provided, and training on the production and use of biogas. The pilot biogas model was successful and is now being replicated to other households (in 2015).

The effects and impacts are profound. The use of biogas means that people use less fuelwood and so the pressure on forests reduces. Income is increasing because of pig rearing. Hygiene in the living environment improved, as animal waste is digested.

The activities are easy to implement, and very popular with the local population, but additional training on various aspects will remain needed for some time, in order to consolidate and sustain the improvements.

Beneficiary in Bao Lac district with a new stove, using biogas.

The old stove, using firewood.

SCODE reduced pollution which puts pressure on natural resources through Community-based waste management.

Most agricultural production in Ha Nam province is paddy rice. Agriculture accounts for nearly 40 percent of the provincial GDP and is the main occupation of 80 percent of the rural population. The household economy model is concentrated in the more than 40 trade & craft villages in Ha Nam. These villages face serious environmental challenges, including especially the use and pollution of water as a result of small manufacturing as well as agriculture and livestock, all of which pollute and deplete drinking water. Trade & craft villages are densely populated and the heavy pollution including untreated industrial waste affects people directly and seriously, as well as polluted air and high noise levels. Climate change is putting additional pressures on the natural resources such as water availability and floods can be associated with additional spread of pollution. And cleaning up water, land and air pollution will have local benefits and is also associated with limiting the production of greenhouse gasses (GHGs).

The CEDO project (community-based sustainable development in peri-urban areas in Vietnam[15]) of SCODE in Ha Nam helped some seriously polluted trade villages, including Thanh Ha embroidery village and Liem Tuyen noodle village in Thanh Liem district, as well as Thanh Tuyen ward, Phu Ly town.

Work at the community level included problem assessments and awareness raising efforts.

Raising awareness of waste led to the setting up of waste collector groups, building of temporary waste dumps with separate areas for solid waste and organic waste, and subsequently training of local people in composting of organic farm waste, raising worms with organic fertilizer (as chicken feed), and using of organic fertilizer for local farm. Local farmers were also taught how to monitor the productivity increases. Similarly, technical and financial support was provided for building waste water treatment systems with local materials, which were low cost.

Due to efforts under the CEDO project three trade & craft villages in Ha Nam were taken off the provincial DONRE black-list of extremely polluted villages. Several households increased their income to the extent that they were taken off the official lists of poor households.

The quality of local chickens was better as a result, fetching higher prices. The composting practices were replicated in sixteen other provinces involving 25,000 people in 2 years, in particular poor households. This was because good, successful practice replicates (almost) by itself, especially because it was well communicated. Many people joined the organic farming groups (notably in Thanh Tuyen ward), using the compost and increasing their income.

Successful resilient-livelihood CBCCIs share many important characteristics.

For example, consultation with local women and men, farmers, must take place from start of any initiative. Some local women and men are early adopters, enthusiasts or leaders and are important at the pilot stages (testing) as well as for local dissemination. Local extension agents should be engaged, and other local experts since they are also key in communication innovations and improvements. Local authorities, leaders of the agriculture cooperative, and mass organisations such as Farmers Union and Women's Union, must be engaged from the start too, as they are influential in judging the success of models and encouraging replication. Training is critical, and must be practical, also in the fields of farmers. Finally, resilient-livelihood options are locally specific, depending on soils, markets, the prevailing weather, etc.

[15]see also www.greenhanam.com.vn

4.7 INCREASING SMALL FARMERS' RESILIENCE THROUGH AGRICULTURAL INSURANCE

Those who rely on agricultural activities for their livelihoods are at risk of reduced and unstable incomes as a result of the impacts of extreme weather events, which are exacerbated and made more unpredictable by climate change. Insurance schemes can help to mitigate these risks. SNV has piloted a community-based weather risk insurance scheme, focusing on rice production in Nghe An province, which could be replicated nationwide.

- Engaging communities in assessing risk, and deciding which risks are to be transferred to insurance or retained within the community.
- Implementing the insurance scheme, and documenting the results to assist in scaling-up the initiative.

Nghe An province

Vietnam is strongly affected by climate change, with the most significant negative impact felt by people whose livelihoods depend on natural resources, especially small farmers. Increase in average temperatures and changes in seasonal rainfall have already been observed and models predict increasingly severe climatic disasters, including floods and droughts (Tran Thuc et al., 2015). Approximately 70 percent of Vietnam population are living in rural areas and the majority of those depend on agriculture, aquaculture and/or salt production (SNV, 2014).

In March 2011 the Government issued Decision No. 315/QD-TTg on "Piloting agricultural insurance in the 2011-2013 phase" – known as known as Program 315. Its objective is "to help agricultural producers take the initiative in remedying and recovering from financial losses caused by natural disasters or epidemics, contributing to social welfare in rural areas and promoting agricultural production".

The Ministry of Finance (MOF) and the Ministry of Agriculture and Rural Development (MARD) were assigned to implement this, with the authorities of 20 provinces and insurance companies. Analysis of the agricultural insurance market prior to Program 315 showed some experiences of different companies with mixed success. Weaknesses were explained by for example the lack of State engagement, unsuitable insurance products, and low income of farmers (Tran Tu Anh et al., 2013b). Program 315 subsidised insurance premiums up to 100% for households officially classified as the poor.

SNV has piloted community based agricultural insurance in Nghe An.

The project "Innovative financing for building community resilience to climate change in coastal Vietnam" of SNV with the Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD), funded by German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) was implemented between 2011 and 2014. The overall aim of this project was to reduce poverty by increasing the adaptive capacity of local communities to the effects of climate change.

It raised awareness and built capacities in five communes[16] of Nghi Loc district in Nghe An province, introduced improved agricultural practices, and improved management of coastal mangrove forests. Its fourth and very innovative specific goal was to develop a weather risk insurance scheme and subsidy mechanism to protect coastal communities' livelihoods from the risk of extreme weather events, pilot that in the five communes in Nghe An and advocate for broad replication.

The targets were:

a. pilot an **appropriate model** of weather risk insurance;
b. pilot a **subsidy mechanism** for agricultural weather risk insurance;
c. provide 25 percent of households with access to the pilot.

[16] Nghi Cong Nam, Nghi Lam, Nghi Thai, Nghi Van and Nghi Yen.

CBI contract signing and hand-over between Head of Bao Minh Nghe An and Vice chairman of Nghi Van People's committee

Farmers pay their CBI premiums for enrollment, Nghi Van commune

This project component targeted poor farmers, as well as the wider communities, local authorities and, importantly, the National Government and (insurance) businesses sector. IPSARD was assigned by MARD to lead for that ministry on implementation of Program 315, and also for "Studying and proposing policy on insurance scheme for agricultural production" which was simultaneously implemented with IPSARD's contributions under the project. The project piloted agricultural insurance as per Program 315 and was supported by insurers and the provincial authorities. Nghe An was identified as one of the provinces where a pilot programme should happen on rice growing under Program 315, but the project area (Nghi Loc district) was not covered so the pilot agricultural insurance was additional to activities under Program 315, which enabled a comparison of effectiveness (Tran Tu Anh et al., 2013c). Program 315 tried out insurance products on livestock, aquaculture insurance and rice, but the project in Nghi Loc district focused on rice crop insurance only.

The project studied the feasibility of current agricultural insurance in Vietnam.

The community-based insurance (CBI pilot) was developed, which required active community involvement in identification and decision-making regarding which risks would be retained within the community and which would be transferred to insurance. Each village operated as a mutual insurer that represented the members of the insurance product (CBI), with payments channelled through the village head and witnessed by commune authorities. The villagers' awareness was raised (using IEC materials local media, local government extension, village meetings, and household discussions) about the risks and risk management activities, and how the CBI would work, including collection of premiums and allocation of loss payments.

The Bao Minh insurance company underwrote the CBI pilot, and signed a Memorandum of Understanding with SNV on 25 July 2012, offering the area-yield index rice insurance product based on Program 315, but with yield measured at the village level.

The premiums and benefits were similar to those of Program 315, but Program 315 works on a commune basis and this CBI pilot on a village basis.

To account for differences in crop losses between villages, the Nghi Loc District People's Committee's Office of Statistics verified the village level data for the last three years.

Re-insurance was also planned and the "business case" for re-insurance was clearly stated by technical advisors to SNV. Bao Minh discussed re-insurance with VinaRe, but VinaRe found village level insurance too risky and withdrew; the proposal also fell through with other re-insurers. However, one international re-insurer, SwissRe continued to engage, which benefited the project as they have much international experience on risk forecasting.

The project subsidized the premium (total €75,000 or €15,000 per commune, or an originally planned subsidy of €30 per household) and a practical subsidy mechanism had to be developed, but the CBI pilot also required farmers to pay for enrolment. The CBI is thus different from Program 315, which subsidized 100% of the premium of farmers officially recognised as poor. However, the enrolment rate of the CBI was more than twice that of the Program 315 in the same province (SNV, 2014).

Figure 7. Community-based Insurance (CBI) product (Tran Tu Anh et al. 2013a)

Detail	CBI
Subject covered	Rice crop
The unit insured	Village level
The insured area	The villages in the commune of Nghi Van, Nghi Lam, Nghi Thai, Nghi Cong Nam and Nghi Yen, in Nghi Loc district, Nghe An province.
The insured members	The farmers/cooperatives growing rice in the unit insured have registered to participate in the insurance scheme and have the legal rights to the rice on the land area insured.
Cover	Natural disasters include: storms, floods, typhoon, drought, cold spells, fog, sanitization, tsunami, thunderstorm, tornado, as announced by the competent authorities. Pests/diseases include: Yellow dwarf, twisted leaves, stripe virus, rice blast, Xanthomonasoryzae, brown plant hopper, tryporyzaincertulas walker, as announced by the competent authorities.
Insured coverage	The insurer will compensate the insured for the yield loss caused by natural disaster and/or pests/diseases within the insurance period. Additional insurance: Insurance coverage under this provision is extended to cover the costs for re-cultivation in case more than 5 ha of actual rice are damaged across the commune during the transplanting/sowing period caused by an insured event under this provision. In such case, the insurer will pay the insured member once with the compensation amount equal to 5% of the sum insured of the rice area to be re-cultivated/re-sowed.
Sum insured (SI)	SI = Rice area covered x Village Average Yield x Grain price
Compensation amount	Compensation amount = (Insured Yield – Actual Yield) (kg/sao) x Rice area covered (sao=500m2) x Grain rice (VND/kg)
Premium rate	4.80 percent
Premium payment	Farmers: 1.12 percent SNV support: 3.68 percent

The CBI pilot (the insurance product) is summarised in Figure 7. The product is "Area Yield Insurance" which means that farmers are compensated if the actual rice yield of the village is less than 90% of the average yield of the last three winter-spring seasons in their village.

The sum insured (SI) is as follows: **SI = (Rice area covered * Village Average Yield * Grain price).** This uses the village average yield of the last three winter-spring seasons and a grain price as certified by the Provincial Statistical Office.

The premium paid for insurance is as follows: **Premium = (Rice cultivation area * Average yield * Grain price) * 4.80 percent .** In other words, it is 4.80 percent of the sum insured (SI). Of this premium farmers paid 1.12 percent and 3.68 percent was subsidy from the project. See Figure 8 for the total premiums paid per commune.

1,099 farmers in the five communes enrolled in the CBI scheme in the first crop (winter-spring 2012-2013) and 2,313 in the second crop (winter-spring 2013-2014).

Figure 8. Premiums paid (by 30/12/2013) in Nghi Loc District's CBI (Tran Tu Anh et al. 2013c)

Commune	Sum of premiums	Sum of farmers' premiums	Sum of SNV premiums	Sum of Area in sao (sao =500m2)
Nghi Công Nam	158,452,050	36,972,145	121,479,905	2,134.10
Nghi Lâm	305,126,566	71,196,199	233,930,367	4,047.89
Nghi Thái	210,114,778	49,026,781	161,087,996	2,99.11
Nghi Văn	111,672,306	26,056,871	85,615,434	1,521.12
Nghi Yên	9,799,312	2,286,506	7,512,806	115.38
Grand Total	795,165,011	185,538,503	609,626,509	10,815.60

Village heads and representatives of social organizations helped farmers complete their application forms and collect the premium; the entire premium had to be paid at one time and in cash. Farmers were required to buy insurance for the whole area on which they use for rice cultivation.

All farmers who cultivated rice in the five communes were allowed to join, so not only those classified as poor.

Claims would be approved …

- if actual rice yield is less than 90 percent of the average yield for the entire village
- If an area damaged during the sowing season was re-cultivated
- If an announcement from the DPC states that the losses were due to an insured event
- If the sowing loss of the commune exceeded 5 hectares

90 percent is the Insured Yield (IY), i.e. the insurer bears the risk for 90 percent of the average yield and farmers bear the risk for 10 percent. Compensation was thus calculated as follows:
Compensation amount = (Insured Yield – actual Yield) (kg/sao) * Rice area covered (sao=500m2) * Grain price (VND/kg).

So, with a hypothetical average yield of 100kg/sao but an actual yield of 80kg/sao due to an insurable cause, on a farm of 5 sao, and with an average price of 5,000 VND/kg rice grain, the insurer would have to pay (90 – 80) kg * 5 sao * 5,000 VND = 250,000VND.

However, in both winter-spring crops in the pilot no insurable yield losses were encountered (yields were generally higher than the average of the previous crops), so no claims were made or paid in the CBI pilot.

A weather risk insurance scheme and subsidy mechanism to protect coastal communities' livelihoods from the risk of extreme weather events has been developed and piloted. The project established a dialogue about progress with MOF, the province and district authorities and Bao Minh, and shared the results of the CBI model. The project also supported the participation of leadership and key personnel of Bao Minh Insurance and Nghi Loc district to the International Micro Insurance Conference in Jakarta, Indonesia, in 2013.

SNV carried out detailed analysis of the piloting practices of Program 315, success, failures, and lessons learned, and compared that to the results of the CBI, which suggest that the CBI uptake was comparatively high (Tran Tu Anh et al., 2013c).

The project has thus contributed experience with its CBI model to national policy makers, which should enable scaling up as the agricultural insurance market will be supported by the State and will develop further.

It was also learned that:

- Agricultural crop insurance is extremely challenging as well as a huge opportunity to address the disaster risks. In order to promote agriculture insurance for resource-poor farmers, support and or subsidies from government and/or other sources are essential.
- However, the 100 percent premium subsidy to farmers officially classified as poor, as applied in Program 315, is not recommended due to its high costs and because it actually reduces the interest farmers to reduce their risks. However, promoting low income people's willingness to pay is a challenge and requires joint efforts.
- The CBI model is based on yield index insurance, which is a challenge due to a lack of consistent and trustworthy data. Good historical data on yields and weather are needed at the national, regional, provincial, commune and village level in the best interest of low income farmers, and in order to overcome "moral hazard"[17] and information asymmetry.
- There are potential synergies with microfinance institutions (MFI), not only from a knowledge perspective but also from an operational perspective, supporting micro-insurance distribution channels through established MFI's networks in rural areas.

Community Awareness raising on climate change, its relation to disaster, and CBI as a disaster risk reduction measure, Nghi Cong Nam commune

[17] Moral hazard: the lack of incentive to guard against risk where one is protected from its consequences by insurance.

4.8 LOCAL ENERGY PLANNING (LEP) – THE KEY FOR MITIGATING CLIMATE CHANGE

Potential for large-scale renewable energy sources in Vietnam has yet to be fulfilled, and much of Vietnam's power comes from coal, gas and hydropower. The negative impacts of climate change have a substantial impact on the accessibility of these energy resources, leaving local people at risk of a lack of power. National energy policies have limited consultation of local people. GreenID has supported Local Energy Planning, which engages communities in identifying energy challenges and energy potential, and planning for sustainable energy sourcing and use.

- Engaging communities in energy planning.
- Supporting households to trial new sustainable energy models.
- Documenting successes and learnings to share with policy makers.

Thai Binh province

Vietnam has experienced spectacular economic growth in the past two decades. Its high economic growth rate has led to increasing demand for electricity. The main potential for large hydropower has been exploited, and the national Power Development Plan focuses on the increase of power generation capacity from thermal coal as well as gas. However, domestic coal and gas reserves are limited and half of all coal-for-power needs in 2030 are expected to be imported. Furthermore, the plans for expanding non-hydro renewable energies such as wind and solar power are quite modest, although Vietnam has major potential for renewable energy (see e.g. Nguyen Quoc Khanh, 2013).

Vietnam's energy policies are made with limited consultation of and participation by local people whose lives are directly affected by energy policies.

However, globally, valuable lessons are being learned on decentralized clean energy development, in e.g. Denmark, Germany and Thailand. Development of their renewable energy industry has brought economic benefits, as they start to change from concentrated power plants to distributed, decentralized and diversified power production with new technologies. Vietnam has the opportunity to start on a similar path, as the first showcases of local level alternative solutions are already available.

The Asia and the Pacific region is the most disaster-prone area in the world, and Vietnam is one of the most vulnerable countries to climate change. Vietnam is already experiencing the impacts of more extreme weather events such as heavy rainfall, intense typhoons, storm surges, droughts, and extreme temperatures. As a result, more people are put at risk, particularly poor rural people whose predominantly agriculture-based livelihoods depend strongly on the weather.

Climate change poses dual challenges to the energy sector, particularly electricity generation, which must be reliable.

In August 2015 heavy rain in Quang Ninh province caused coal supply shortages with an impact on national power security, and pollution because water storage and drainage capacities of mines were inadequate. Hydropower is dependent on weather and El Niño conditions associated with drought in some river basins in 2015 is affecting river water flows. Renewable energy sources and energy efficiency can reduce GHG emissions and the energy intensity of the economy. In addition, they can support local economy and livelihoods and have health and environmental advantages.

Local energy planning (LEP) is an integrated and bottom up approach which has been introduced and piloted in Vietnam by GreenID and its partners since 2012.

This approach promotes sustainable energy development with local participation in planning and application of decentralized renewable energy solutions. Adoption of those solutions has several local and also national benefits and will contribute to reducing global climate change (GreenID, 2014c).

It is a process in which local people and authorities work together on a common plan to address issues related to energy, environment, health and livelihoods, with the support from experts. The main beneficiaries are residents and communities that apply LEP as a strategy to mitigate climate change and unsustainable development. It normally engages both the local authorities as well as policy makers at higher levels.

LEP was implemented in Thai Binh province.

GreenID initiated Local Energy Planning (LEP) in Thai Binh province, and followed the common steps of LEP (GreenID, 2014a):

Step 1: **A local energy team (LET) was established** – the main actor in Local Energy Planning. The members are volunteers with interest and some local influence.

Step 2: **The LET was trained** on planning methods and tools, local participation, possible sustainable solutions, and collecting local data.

Step 3: **A questionnaire and a data processor were developed,** based on the local conditions

Step 4: **The LET collected data** on energy challenges, energy potential and the socio-economic situation of the commune plan.

Step 5: **Experts and technical staff processed and analysed data,** including an energy balance sheet on the current energy situation, CO_2 emissions, and sustainable energy potential.

Step 6: The **analytical results were shared** with local people in workshops organized by the LET, to identify concerns, challenges and goals.

Step 7: The LET and community representatives **set goals for producing and using energy** in the context of wider development issues including livelihood development, water supply, public health, and environmental protection.

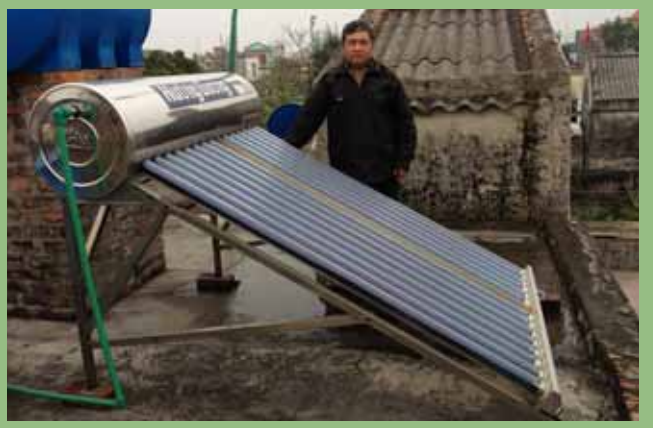
Step 8: Experts and technical staff **developed energy scenarios** based on the sustainable energy potential, and introduced this to the LET, local authorities and others. Based on local preferences, experts developed solutions that should bring economic, environmental and emission reduction benefits for the locality.

Step 9: Based on the results of experts and with their assistance, the LET formulated a **draft commune-level energy plan,** including detailed actions for different periods, and the LET **consulted with the community and authorities** to reach consensus on the plan.

Step 10: **The plan was implemented.** LET cooperated with local authorities to raise awareness of sustainable energy use, environmental protection, and waste management actions proposed in the plan. Sustainable energy models were applied by local people and experts provided technical assistance to implementation.

Introduction and orientation workshop (Thai Binh, May 2012)

LET collected data in Nam Cuong (August 2012)



Solar water heater in Bac Hai (December 2013)

Solar panel (RO purifier system) in Nam Cuong

After the energy plan was drafted, some demonstration models were installed in the community by households who are willing to invest themselves, and who received some small support from the project. GreenID helped those households in connecting and negotiation with the companies which provide sustainable energy solutions to ensure affordable prices and best quality. In the demonstration phase, the selected households received support of 20-50 percent of total investment cost, depending on the model. For example: the households that applied the biogas model received VNĐ3 million (=USD 150) and had to invest VNĐ 4.5-6 million themselves (USD 225-300).

Further investments are only by the households themselves. GreenID also helped connect local people with potential funding sources to generate assistance for the community on plan development and replication of LEP in other communities. GreenID helped to organize workshops with potential sponsors and policy makers at provincial level to seek for the support for the implementation of the plan.

LEP has brought economic, social and environmental benefits to people in Thai Binh, as follows:

Reduced fuel costs for households.

According to a GreenID survey conducted in Thai Binh in 2014 (GreenID, 2014b) in different areas, more than 70 percent of surveyed households said that the local energy plan was realistic, useful and had brought benefits by reducing energy consumption and costs. For example, households with livestock installed biogas digesters, with good quality and odourless gas produced that is enough to cook. By replacing LPG gas, it saves on average 112,000 VND/month/household (over USD 5) (average of more than 50 households applying biogas).

Reduced energy cost for authorities and the community.

The LEP also included public solutions with many benefits to the local people. For example, the kindergartens in two communes in Tien Hai district were had solar water heaters and biogas digesters installed. Thereby, the schools reduced cooking by coal, and are saving around 450,000VND/month (more than USD 20).

Creating markets and jobs for sustainable energy production.

The LEP created demand, and supply chains were set up by local people who had information about technology solutions on the market. Suppliers were introduced to meet the requirements

and needs of the people; in particular the construction of biogas digesters helped to create job and business opportunities for local people. They were trained on how to install the biogas model and become able to provide the service for others in the communities. In addition, small businesses started selling different sustainable solutions.

A cleaner environment.

The LEPs showed the current and the forecast situations regarding CO_2 emissions based on the business-as-usual scenario, and it promoted the application of different sustainable energy solutions. Local people now understand what they can and must do to clean and protect the environment, with 77 percent of households saying that they had thus contributed to improving and protecting the environment (GreenID, 2014b). Mr. Truong Phi Hai, from Nam Cuong commune, said that his family's breeding pig caused a foul smell for his family as well as his neighbours and animal waste also caused water pollution, but since he uses a biogas digester this problem has been solved. In addition, people also use improved cooking stoves, solar water heaters, and LED lights, which also contribute to reducing emissions. The chairman of the Bac Hai commune People's Committee (Tien Hai district in Thai Binh province), said that because of LEP, many solutions have been introduced into the commune, which has helped to reduce smoke from burning rice husk in the field by 70 percent in comparison with the previous periods.

Health of the people improved.

According to 86.5 percent of households their model helped improve health of the people. In particular, improved cook stoves using rice husk reduce smoke, leading to less indoor air pollution and irritation of eyes and respiratory tracts. Women also saved cooking time.

Residents' awareness and knowledge on energy and environment improved.

LEPs are made "by" the people and "for" the people in the community, with the technical support of experts. During the planning process, local authorities, a large number of local men and women, and staff of for example schools and health posts were involved. Their awareness was raised through training, exhibitions, seminars, study tours and communication events. Many now understand energy saving, energy efficiency and the importance of sustainable development, and applied sustainable energy models.

The direct project beneficiaries include women in particular.

Women focus more than men on the domestic activities of households, where energy can be produced and is consumed. They participated in all activities of the project, accessed information and knowledge, voiced their ideas, and were actively involved in the energy planning process in their communes. The members of the LET included women, and they were advocating other women to increase their awareness on saving electricity and using sustainable energy models.

LEPs also brought benefits through models with social, public agencies such as the People's Committee, schools and health posts through the implementation of community-level models.

Different community scale models have also been identified and applied within the two communes in Tien Hai district. These models have brought a lot of benefits for the local people. For example: The reverse osmosis (RO) water purifier and supply system using solar PV installed in Nam Cuong commune has helped to provide clean and safe drinking water for 3500 people in three villages. The community biogas model provides gas for free to 25 households in Hoang Mon village, Nam Cuong commune, making use of large local pig farm. At the kindergarten in two communes, solar water heaters and the biogas model have been installed. These have helped to provide warm water and gas for cooking, and made use of organic waste from cooking and the toilet system in the schools. The models were also instrumental in increasing people's awareness and interest about renewable energy because it provided real examples of how it can work.

Sharing successes with policy makers.

One of the highlights of the initiative was building the local energy team (LET), including members who are respected in the community. Through training and guiding projects they gained knowledge and became more confident and proactive. Energy planning helped the formulation of strategic objectives to promote Socio-economic Development Plans of the communes. The application of sustainable energy solutions by the communes is helping to achieve the objectives of the New Rural Areas Development and other national policies. The leaders of the two commune LETs shared their success stories as well as lessons learned with district authorities, provincial agencies and the National Assembly, who were surprised and impressed, and highly appreciated the achievements of these two communes. Province leaders recognized the potential for replicating this initiative and are considering to provide support for sustainable energy solutions.

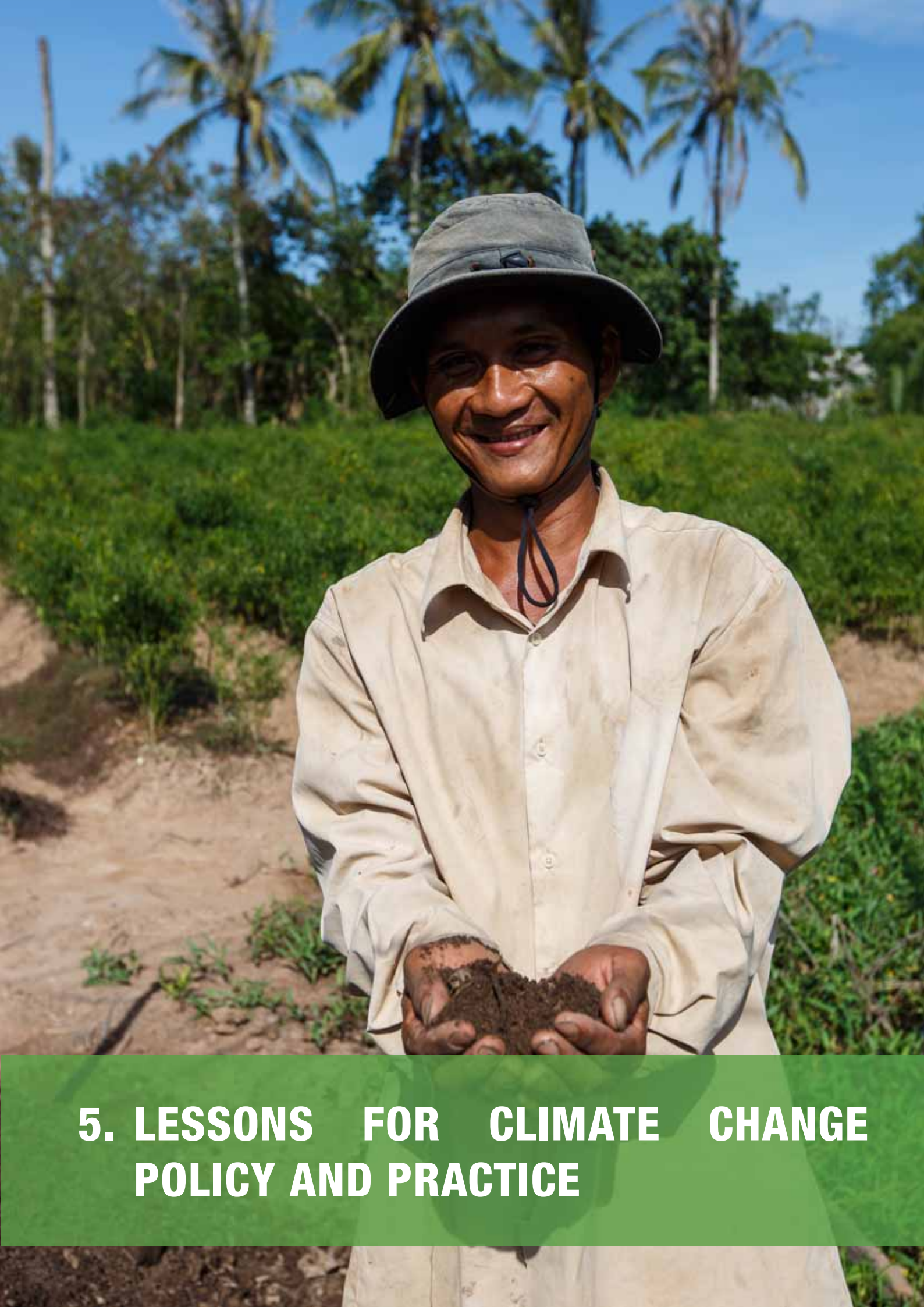
The economic, social and environmental benefits of LEP have been demonstrated by the initial success of this approach in Thai Binh.

It promoted non-commercial energy development in the communities and for some equipment it helped generate markets, which suggest that the benefits may spread further and be sustained in the long term. The Government has issued many policies to address energy challenges and to respond to climate change and environmental degradation. These policies are being implemented by authorities at all levels through specific programmes. However, there are many barriers to successful implementation, as generating the active participation of residents at the grassroots level requires resources, skills and efforts. Nevertheless, community initiatives, such as LEP, with the potential to contribute significantly to policy implementation, have been taken and can and may be included in national, province and district strategies, plans, programs and budgets for improvements in many communities. In particular, LEP can help to contribute to achieving targets set in the New Rural Areas Programme which Vietnam government pursuing.

GreenID recommends that:

- LEP should be included in local social economic development planning as a useful approach for implementing the New Rural Areas Program as well as local Green Growth Action Plans.
- Development organizations should support further study and documenting of results and lessons learned from LEP in different areas, in order to develop further guidance to agencies and authorities across the country.

Sustainable energy exhibition in Thai Binh (November 2012)



5. LESSONS FOR CLIMATE CHANGE POLICY AND PRACTICE

There are several common conclusions from the community-based climate change initiatives (CBCCIs) presented in Chapters 3 and 4, with generic lessons on good local practice and on how to engage successfully with different policy making and policy implementation processes. In fact, good local practices often link to policy makers, thus receiving clear signals from higher levels, and based on local successes project proponents are sometimes able to influence policy implementation processes that affect other places.

Some important lessons for NGOs as well as local authorities and national policy makers on linking CBCCI practice to local, provincial and national plans and policies are as follows.

5.1 PLANNING AND FORMULATION OF COMMUNITY-BASED CLIMATE CHANGE INITIATIVES

CBCCIs must follow **bottom-up, participatory and integrated planning processes.** Top-down processes alone rarely work in disaster risk reduction, climate change adaptation or green development. Many methodologies for participatory approaches have been used as is illustrated throughout chapter 3 and 4 – these methodologies are especially important for empowerment of women, people with disabilities and ethnic minorities (see section 3.6).

CBCCI formulation, at the earliest stages of any project, must **include (local and higher level) authorities,** which will create local ownership of activities and will increase the chances for future support and scaling up through official budgets and structures, if the CBCCI is successful.

- Meetings and discussions with national, provincial, and/or district authorities and agencies before NGOs finalise plans and start to work anywhere are important. In these meetings information should be provided, and serve to initiate working closely with authorities and other local partners.
- Government staff in lower positions should be actively involved in project formulation: they will report to higher levels and the latter will engage later. This includes extension agents who play a key role in innovations (see e.g. sections 4.1 and 4.6).

It is important to recognize that **local people are experts,** for example of their local agro-ecosystems, and local weather patterns, and to ensure that local knowledge is incorporated in project plans, designs of models that will be piloted locally, etc.

- This was also demonstrated e.g. in the design of agro-forestry and agriculture models (see e.g. section 4.2 and 4.6), and also for example in addressing local energy needs (section 4.8).

There are also several cases that demonstrate that a combination of **local, indigenous knowledge with external, scientific knowledge can help to create the best models, produce convincing evidence of success, and help convincing policy makers of the importance to scale up** and replicate.

- This is partly because climate change is leading to a new situation in certain localities, for example persistent but traditionally unusual drought. Climate information for localities is available generally and its use in for example determining new cropping patterns may already have contributed to better yields in some cases. However, more locally specific climate change information is needed, and the implications of this for crop management needs to be determined and documented better.
- In many instances local people have already started to adapt to climate change. The external experts and agencies should listen and observe what is going on, provide training, help design adaptation measures, monitor, assess the successful models, etc.
- External experts and agencies must give technically high quality advice and provide good value for money – they must have credibility. The interaction of scientists and local people should be part of the managed project process/design, which happened in, for example, the agroforestry CBCCI. An essential point is to make external knowledge actionable by translating it into language that can be understood by local people and thus inform their actions.

5.2 IMPLEMENTATION OF CBCCIS

CBCCI implementation requires **mobilization of households, women, men and children** who should be involved in planning as well as implementation. Their ideas as well as their labour are essential for success in increasing resilience and greening communities.

- Methodologies to mobilize women, men, children and also people with disabilities have been described in different sections, including section 3.1.

CBCCI implementation also requires **close engagement with local authorities, social (mass) organisations such as the Women's Union and the Vietnam Red Cross,** leaders of agricultural cooperatives and villages, and e.g. technical departments at the district or higher level.

- This is important because practical and especially visible results will be easily noted and reported, and success is the most important reason for any CBCCI to be incorporated in local and national policy in some form. In particular, involving and reaching out to the agriculture, forestry and aquaculture extension agents and services is especially important for knowledge sharing and innovation.

Motivation for GHG emissions mitigation comes from **wider livelihood, health and other direct benefits** for the local population, from responding to the top priorities of local people as well as policy makers, such as food security. This must be recognized during planning and throughout the implementation of CBCCI projects, such as increased resilience and productivity or profit in agroforestry and agriculture projects: emissions mitigation must be considered the co-benefit.

Many CBCCIs are informed by guidelines, training manuals and other tools that were created in other situations, and in some instances the **CBCCI also informed (local) guidelines, tools and manuals based on local experience and evidence.** Some manuals that have demonstrated value and were **adopted by e.g. provincial authorities** in scaling up certain experiences are a sign of great success; this happened with e.g. Malteser's Disability-inclusive CBDRM work. These and other methodologies developed by NGOs and the Vietnam Red Cross on CBDRM, gender mainstreaming in DRR and climate change adaptation, etc., **should also be incorporated in implementation guidelines at the national level** such as the "national CBDRM programme under Decision 1002" (SR Vietnam, 2009).

Financial incentives can become unaffordable and are difficult to scale up, so it is important to **demonstrate obvious economic and other benefits of pilots,** approaches or models throughout the project lifetime to local people, outsiders and authorities.

- Clear evidence of economic benefits draws the interest of policy makers to allocate government budget to support measures, because there will be limited need for public investment and there is a high chance that local people themselves will invest and thus spread the application of successful models if those are economically beneficial.

5.3 MONITORING AND EVALUATION, COMMUNICATION AND ADVOCACY

NGOs, external agencies and local communities **must produce evidence of success that is convincing,** including case studies of project impacts and good (technical, scientific) monitoring and reporting at the local and higher level. Evidence is critical for creating trust in CBCCIs' results and credibility in policy dialogue.

- Policy makers and also local authorities and companies may consider support to scaling up and replication when they see (and believe) data on benefits, for example of the importance of awareness of heat stress and basic measures to avoid it in Danang (section 3.2) and the results of tests of agricultural and agro-forestry innovations (see all the CBCCIs in Chapter 4).
- NGO should strengthen the evidence base of benefits, including social return on investments as well as their technical and communication capacities, skills and tools to clearly demonstrate benefits and create incentives for scaling up.

Accessible and **attractive communication materials,** as well as guidelines and training manuals that are informed by local experiences are important for **raising awareness** of local people and officials, and for communication of successes, which increases the chances for scaling up through official policies, budgets and structures.

Communication through the **public media** as well as through **social media** is important for raising **awareness of the public and also of policy makers and local leaders.**

- Many CBCCIs documented in this report have invited public media at various project events, filmed certain events or features and posted them on YouTube, etc., and they have managed to attract both local and also national, even international attention.
- Opportunities for dialogue and media communication may arise out of external events instead of project plans. For example, heatwaves in 2015 have enabled dialogue around the need to address heat stress among different workers (section 3.2).

Local officials can be influential when they communicate successes to higher level leaders, and influence provincial or national policies and plans. If the local authorities are involved from the start of a CBCCI and are well aware of their merits, local officials may become the lead advocates to higher level policy makers / leaders.

- NGO activities must be consistent with the objectives of local departments and agencies, to establish ownership by local authorities / leaders.

- Communication of successes from ministerial departments to ministries can be effective and influential with regards to national sectoral policy (e.g. DARDs to MARD, or DONREs to MONRE).
- Local officials need to have well researched evidence and communication materials for making their case convincingly. For example, COHED involved the provincial DOLISA in awareness raising and training activities throughout the project lifetime (section 3.2).

Successful policy advocacy based on CBCCIs has happened also because **ministries and external agents agreed close engagement.** For example, ICRAF is working to revive agroforestry with MARD (section 4.2); Malteser advocated successfully for disability-inclusion in draft regulation of the national CBDRM scheme (section 3.1); and COHED worked with a MOLISA representative throughout their heat-stress project in Danang (section 3.2).

- Successful influencing of policies and plans requires local communities and NGOs to have good networks and relationships with higher level authorities, and a high awareness of how the Government's policy and planning processes work. For example, joint development of technical documents is ongoing between CCWG members and IMHEN (under MONRE) on "Climate resilient livelihoods – criteria and good practices" and with the Agriculture Extension Centre (under MARD) on "Guidelines for selection of climate resilient agriculture models".

The CCWG has already entered into a formal partnership with two key ministries working on disaster risk reduction, climate change adaptation and greenhouse gas emissions mitigation, MONRE and MARD. Meetings in which lessons from CBCCIs can be shared are sometimes organised and CCWG members take part in various workshops and also in national level policy dialogues. **Policy dialogues with high level national and provincial officials requires good preparation, clear messages, and appropriate ways of communicating in order to be effective.**

- Good, successful models that are attractive locally and to the higher level decision makers usually have multiple benefits (economic, social, environmental).
- Local visits by leaders can be particularly influential.
- Contributions to data collection for local and provincial plan formulation as well as assistance in the drafting can help strengthen provincial social-economic development plans (to mainstream CBDRM, climate change adaptation, or green growth), or provincial green growth action plans (see also section 3.7).
- Successful CBCCIs may also generate opportunities for direct engagement with national policy formulation. For example, the work on heat stress in Danang by COHED has raised interest for providing inputs into the Labour Safety law that will come in to effect in June 2016.

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ADDITIONAL RESOURCES AND LINKS

Section 3.5

- Video clip: Project Presentation by ISET at COP 20
- Storm Resistant Housing project overview with video at UNFCCC website
- Storm Resistant Housing awarded as one of the lighthouse 2014 winner by UNFCCC: here
- Project's leaflet designed by the DNWU with construction designs illustrations
- Housing Design Competition: Concept of Resilient Housing: Danang, Vietnam
- Article by CCCO Danang: Scaling up Storm Resistant Housing project in Danang
- UNFCCC Lighthouse Award Certificate
- Thomson Reuters Foundation's Article about Storm Resistant Housing Project
- Video clip: NEXT CITY's documentary on Storm Resistant Housing Project

Section 4.2

- ICRAF: http://www.worldagroforestry.org/regions/southeast_asia/vietnam/projects/afli
- http://worldagroforestry.org/regions/southeast_asia/vietnam/products/databases/SCAFS
- National Television Program 'Sharing Vietnam': https://www.youtube.com/watch?v=usRw7ih2R5g&list=PLhnzWXR6gFgpBp9xL0Y0zJ_4HeuVmmGVQ&index=12
- Blog about CSV inauguration in My Loi, northern central Vietnam: http://blog.worldagroforestry.org/index.php/2015/06/10/a-tornado-and-heatwave-welcome-a-new-climate-smart-village-in-viet-nam/
- HTTV news about My Loi climate-smart village, northern central Vietnam: https://www.youtube.com/watch?v=8oVQCgBJ4LA
- CSV project: https://www.youtube.com/watch?v=x8-G5OPJbVw
- My Loi CSV: https://www.youtube.com/watch?v=MZzTeBSbIrI&feature=youtu.be

Section 4.5

- Workshops SRI: Binh Dinh http://www.youtube.com/watch?v=71V_ZVamGQE; and Quang Binh http://www.youtube.com/watch?v=pvYu8wue-z8;
- SRI protocol (Vietnamese version): http://www.youtube.com/watch?v=yPlgxJqMyBo
- SNV website: http://www.snvworld.org/en/countries/vietnam/news/low-emission-agriculture-policy-dialogue

Section 4.8

- GreenID: www.greenidvietnam.org.vn
- Video on LEP in Thai Binh: https://www.youtube.com/watch?v=2uSkzgh6nug
- https://www.youtube.com/watch?v=KCIVblwJcvg

7. ANNEXES

ANNEX I METHODOLOGY OF "ASSESSMENT AND DOCUMENTATION OF CBCCIS"

The Climate Change Working Group (CCWG) appointed an external expert to facilitate and implement most of the tasks. The CCWG Chair, Co-chair, Coordinator, and Development Advisor, as well as focal points from core members, supervised and worked closely with this expert.

The methodology applied to the task of "Assessment and documentation of CBCCIs" included analysis of climate change policy and NGO experience with CBCCIs in Vietnam; and the writing up and documentation of that experience and analysis. The analysis, and thus the conclusions, lessons and recommendations, rest on triangulated quantitative and qualitative information from multiple sources. These sources had to include independent sources where possible, especially qualitative data that often includes opinion of various stakeholders such as managers and beneficiaries of projects. The documentation was substantially referenced in order to demonstrate that conclusions, lessons and recommendations have the strongest available foundation.

The external expert did a literature review, facilitated 2 workshops, and undertook some additional key informant interviews and electronic exchanges to identify sources of information regarding specific CBCCIs. Key informants were also asked to identify relevant photographs for possible use in the documentation.

A basic analytical framework (see Annex II) guided the phrasing of questions and the analysis of successes, failures, strengths and weaknesses of CBCCIs at the local level and in terms of policy relevance and impact. The analytical framework first guided the template and scoring sheets for the (initial) assessment and write up of CBCCIs by key stakeholders. The analytical framework is based on a number of internationally published documents on climate change policy and action, CBCCIs and advocacy for policy change, as well as relevant scientific analysis, guidance material and some of the documentation of CBCCIs in Vietnam. The analytical framework and template are agreed upon by the key stakeholders; i.e. there was up-front agreement on, for example, desirable overall outcomes of CBCCIs, desirable approaches and tools for implementation of CBCCIs, and on how they link or might link to policy formulation, monitoring, or review.

Two workshops with key stakeholders were organised during the process of analysis and documentation. These workshops included (group and plenary) discussion (e.g. to agree the analytical framework, template, draft outputs, and draft conclusions); brainstorm sessions (e.g. CBCCI cases); identification of sources and generation of data; and actual writing and documenting.

Electronic exchanges and some interviews (external experts and some key informants) were also applied during the process, to identify sources of information and agree on some conclusions and recommendations. The drafts and final drafts of the three main expected outputs (synthesis report, factsheet and policy brief) were exchanged several times with a core group of stakeholders (CARE, Oxfam, GIZ, SNV, Malteser International) for comments that were incorporated in the final versions produced by the external expert.

ANNEX II ANALYTICAL FRAMEWORK

AII.1 Introduction

Members of the Climate Change Working Group (CCWG) focus much of their effort on Community-based Climate Change Initiatives (CBCCIs). These initiatives, in direct support of local communities, should help to reduce climate change risks, and by developing green and clean livelihoods, lifestyles and environments, they may also reduce greenhouse gas emissions and increase carbon removals. CCWG members make choices in who they target and in how they work in communities. Almost all have the primary objective to assist the poor as well as under-privileged women and men, children, the elderly and/or ethnic groups, and most use participatory approaches to give voice to local women and men. The CCWG members also aim to share lessons and inform policies, to enlarge the effects and impacts of their efforts beyond the communities where they work directly, and to improve provincial and national policies and make those most conducive for success at the local level.

In other words, the members of the CCWG broadly share values and aims of their climate change response work. They also need to know whether they are successful, both at the local level and in terms of seeking policy improvements. This note aims to provide elements of an analytical framework or "theory of change", as the basis for the analysis of CCWG members' effectiveness in responding to climate change. It:

- describes some of the desired outcomes or impacts of CBCCIs at the local level which are largely normative, i.e. they are aims and values that are widely accepted by CCWG members;
- describes the widely accepted normative aspects of policy processes and outcomes, i.e. views on what is good climate change policy and good policy influencing practice;
- proposes some concepts and defines terms that help to express the local climate change challenges and opportunities, the causes of those challenges and possible solutions, as well as the links between climate policy and local action;
- borrows some relational diagrams that show how problems and their causes as well as actions and their outcomes link or can link, in order to help analyse the multi-sectoral and multi-level causes of climate-related problems and effects of climate change policies and responses.

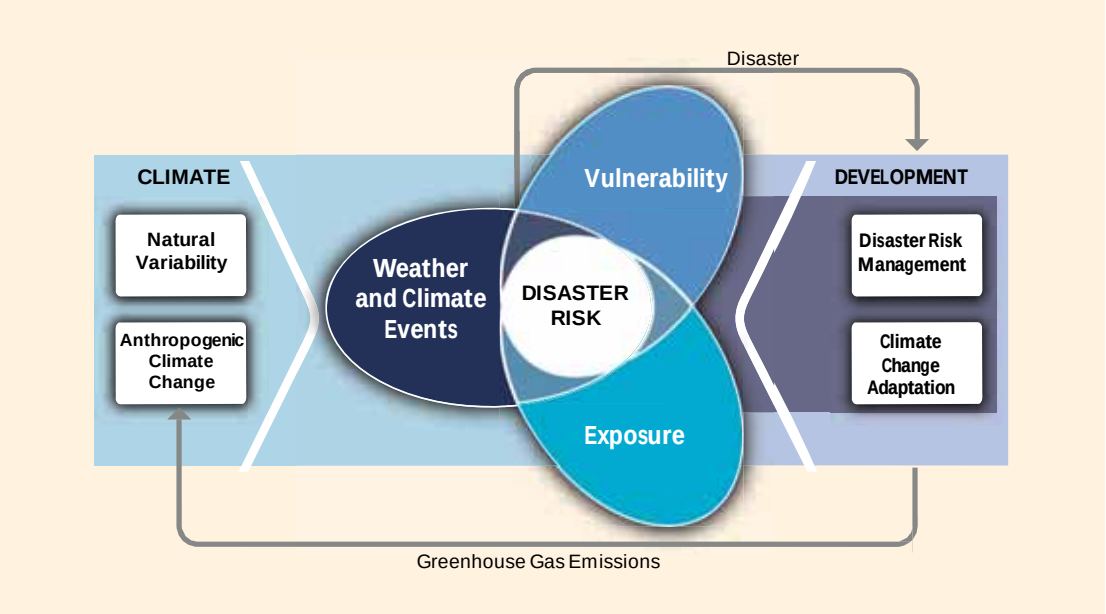
The bulk of CCWG members' CBCCIs are "community-based disaster risk reduction and climate change adaptation initiatives", several of which are assessed and described in this report. Community-based forestry and agroforestry initiatives often have both a GHG emissions mitigation and an adaptation effect; and community-based green and clean development initiatives will include a focus on GHG emissions mitigation but they may also have adaptation effects. This note is the basis for the template to write up a number of CBCCIs in Vietnam, as well as for self-assessment of a range of CBCCIs in the above mentioned three categories (see Annex III).

AII.2 Reducing climatic disaster risks

The causes of disaster risk in the context of climatic extremes are represented in Figure 9. This figure is taken from the Special Report Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (known as SREX) by the Intergovernmental Panel on Climate Change (IPCC) (IPCC, 2012). A similar report was written with a focus on Vietnam, by a large group of Vietnamese scientists and also climate change adaptation and disaster risk reduction practitioners (known as SREX-Viet Nam) (Tran Thuc et al., 2015).

As per Figure 9 and SREX definitions, disaster risk is made up of three factors: "Disaster risk derives from a combination of physical hazards and the vulnerabilities of exposed elements and will signify the potential for severe interruption of the normal functioning of the affected society once it materializes as disaster" (Tran Thuc et al., 2015: 37). The conceptual framework in Figure 9 means that, as long as GHG emissions keep causing climate change, weather and climate extremes are getting worse, and for example mean sea level rise will continue to occur. In order to reduce risks there are only two things left, i.e. local and policy actions must reduce social vulnerabilities and/or the exposure of vulnerable people, communities, infrastructure, businesses, etc. to climate-related events.

Figure 9. The main concepts of 'Special Report Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation' (SREX) (IPCC, 2012, p. 31)



The definitions of some other terms used in SREX are as follows:

- **Exposure** refers to the presence (location) of people, livelihoods, environmental services and resources, infrastructure, or economic, social, or cultural assets in places that could be adversely affected by physical events and which, thereby, are subject to potential future harm, loss, or damage (IPCC, 2012: 32).
- **Vulnerability** is the propensity or predisposition to be adversely affected. Such predisposition constitutes an internal characteristic of the affected element. In the field of disaster risk, this includes the characteristics of a person or group and their situation that influences their capacity to anticipate, cope with, resist, and recover from the adverse effects of physical events (Wisner et al., 2004). Vulnerability is a result of diverse historical, social, economic, political, cultural, institutional, natural resource, and environmental conditions and processes (IPCC, 2012 p.31).
- **Resilience** is defined as the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a potentially hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions (IPCC, 2012: 34).

The above definition of resilience is not the exact opposite of vulnerability as per the IPCC, as it focuses on systems. However, the key elements of resilience are about recovery, "restoration, or improvement", which may also apply to "sustainable livelihoods" as highlighted in section AII.3

Figure 10. Adaptation categories, types and examples (Brooks et al. 2011, p.13)

Category of adaptation	Type of action	Examples
Addressing the adaptation deficit	**Resilience building**	■ Livelihood diversification to reduce poverty in context of climate variability ■ Crop insurance, seasonal forecasting, other agricultural innovation including irrigation ■ Early warning systems for DRR
Adapting to incremental changes	**Climate proofing**	■ Upgrading of drainage systems to accommodate greater runoff due to more intense of precipitation ■ Adapting cropping systems to shorter growing seasons, greater water stress and heat extremes (e.g. through crop substitution, irrigation, new strains) ■ Improving DRR systems to cope with more frequent and severe extremes
Adapting to qualitative changes	**Transformational change**	■ Phased relocation of settlements away from areas at existential risk from sea-level rise ■ Shifts in emphasis in large-scale economic activity away from areas/ resources threatened by climate change (e.g. away from water-intensive agriculture, climate-sensitive tourism, high-risk marine resources, to less sensitive activities) ■ Transformation of agricultural systems from unsustainable (under climate change) intensive rain-fed or irrigated agriculture to lower input e.g. pastoral or agro-pastoral systems.

Figure 9 is focused on what could be presented as the "outcome level", particularly risks for extreme weather and climate events, although vulnerability and exposure also determine risks for slow onset changes such as sea level rise. In addition, adaptation actions to address climate-related changes (and that must lead to outcomes) were categorised by Brooks et al. (2011), as presented in Figure 10. This includes examples that are also found in the work of the CCWG members, such as livelihood diversification, reinforcing early warning systems, and adaptive cropping systems.

The same authors stress that "any framework for evaluating adaptation should attempt to capture how well climate risk management (CRM) is integrated into development" (Brooks et al., 2011, p.14), and that baselines required for measuring vulnerability are shifting as the climate is changing, so climatic changes must be monitored in order to correctly understand the results of interventions (Brooks et al., 2011, p.16). Vulnerability indicators must capture the (social, economic, environmental, cultural, political) drivers of vulnerability, and they are situation-specific. Some "high level" indicators to assess the developmental impacts of climate change adaptation include (Brooks et al., 2011, p.7):

- Numbers of beneficiaries of climate change adaptation interventions
- Coverage of climate change adaptation interventions
- Numbers of people experiencing reductions in vulnerability (based on context specific indicators of vulnerability)
- Value of assets and economic activities protected or made less vulnerable
- Benefit/cost ratios of adaptation measures that were implemented.

The concepts and relations in Figure 9 and Figure 10 as well as the generic climate change adaptation indicators suggest that the following basic questions and associated specific questions may be asked in assessments of a community based climate change adaptation initiative (compare also with the scoring sheets in Annex III):

a. **Were vulnerabilities reduced?** Of which social groups, communities, systems, infrastructure, etc., and in the context of which climate stresses and shocks? Numbers of people whose vulnerabilities reduced? Value of assets and economic activities protected or made less vulnerable?
b. **Was exposure reduced?** Exposure of who and/or what, to which climate-related stresses and shocks? How many people / communities? What were the benefit/cost ratios of adaptation measures?
c. **Which lessons were learned** about the implementation and effectiveness of the programme of actions (approaches, methods) that led to reduced risks (= determined by climate related hazards, vulnerabilities, and exposure)?

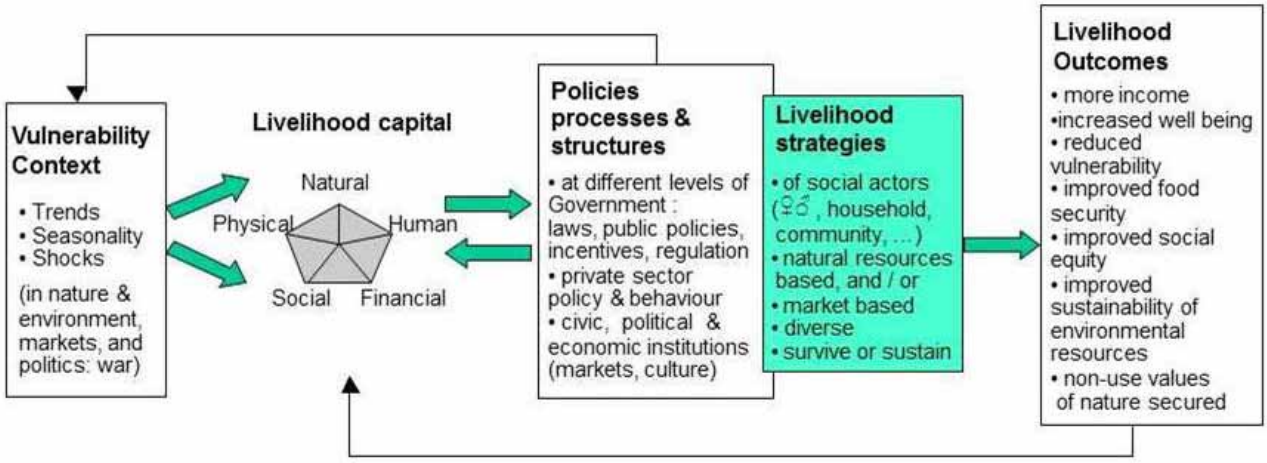
AII.3 Increasing livelihood resilience and the greening of life

The sustainable livelihoods framework was developed in the 1990s and has been represented in a number of very similar diagrams including the one in Figure 11 (Neefjes, 2000, p.83; see also Carney et al., 1999, and CARE, 2013, p.5-6).

Definitions of sustainable livelihoods also differ slightly, and include "A livelihood depends on the capabilities, assets (including both material and social resources) and activities which are all required for a means of living. A person or family's livelihood is sustainable when they can cope with and recover from stresses and shocks and maintain or enhance their capabilities and assets both now and in the future, without undermining environmental resources" (Neefjes, 2000; p. 82).

Critical is that this diagram or framework is "read" from the right hand side, the livelihood outcomes, which are the most normative aspect of it. This includes "reduced vulnerability" which is very similar to increasing resilience (of certain systems, communities, people, etc.). Therefore the core questions that arise from this framework include "how can or was vulnerability for certain climatic shocks or stresses reduced?" in a certain case. Resilience is defined by IPCC as mentioned in section AII.2, including "… the ability of a system … to anticipate, absorb, accommodate, or recover from the effects of a potentially hazardous event …". In other words, the definitions of resilience and of sustainable livelihoods contain very similar elements, about the potential to recover from shocks.

Figure 11. The Sustainable Livelihoods Framework (Neefjes, 2000, p.83)



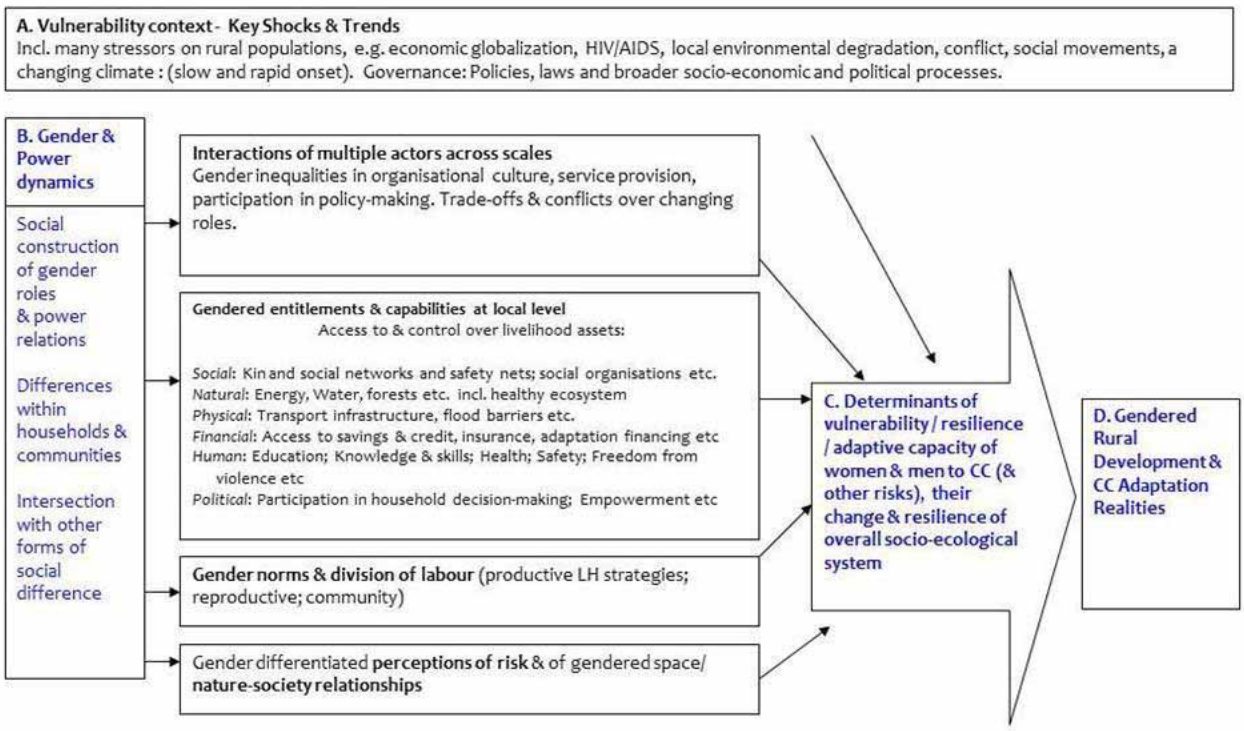
Furthermore, the (vulnerability) context and livelihood capitals in the sustainable livelihoods framework are changing, as would policies and institutions etc., depending on both external and internal factors including choices and actions by local people (who chose livelihood strategies, and invest in for example social or natural capital) and external agencies such as NGOs (who may invest in, for example, human capital and policies and behaviours to improve gender equality), jointly leading to different livelihood outcomes of specific communities or social groups.

CARE has provided a definition of a **climate resilient livelihood:** *"a livelihood exposed to changing climate change shocks and stresses has the capacity to resist, absorb, accommodate to and recover from the effects of the shocks and stresses in a timely and efficient manner, including through the preservation, restoration and where possible, improvement of its essential basic structures and functions"* (CARE, 2013:6).

The sustainable livelihoods framework, including recent attempts at making it explicit for climate related shocks and stresses by, for example, CARE, is not only about reducing vulnerability as an outcome, or about achieving climate resilient livelihoods. It also expects outcomes associated with improved natural resource sustainability and environmental quality, such as improved forest quality, which in the climate change context could mean reduced GHG emissions from deforestation and increased carbon removals from afforestation and forest regeneration. Thus

the sustainable livelihoods framework provides language and relationships that enable us to analyse effects and impacts of external actions and people's own efforts, and strategies for influencing policy on both climate change adaptation and mitigation. Important to note is that there is ample evidence that people, communities or businesses cannot be expected to pursue GHG emissions mitigation as their only goal, but rather, they do so if there are immediate other benefits (livelihood outcomes) such as increased income and well-being, which are also known as co-benefits.

Figure 12. Analytical Framework gender and climate change (Nelson, 2009)



For analysis of gender-climate change relations, UNDP and Oxfam in Viet Nam commissioned the formulation of an analytical framework in 2009. Questions for contextual analysis and fieldwork in a number of communities in different parts of Vietnam were prompted by the diagram in Figure 12 (Nelson, 2009). The research included aspects of climate vulnerability assessment as well as efforts to document success factors in achieving co-benefits in projects focused on GHG emissions mitigation (UNDP & Oxfam in Viet Nam, 2009), although the framework in Figure 12 focuses on rural, natural resources dependent livelihoods, much like the sustainable livelihoods framework. Specifically, it highlights social and power relations at household and community levels; gendered entitlements to different capitals and gendered norms and division of labour; and gendered perceptions of risk. These factors determine different outcomes for women and men in terms of vulnerability or resilience for climate-related and other shocks and stresses. The gendered social relations, entitlements, norms and behaviours also determine other (livelihood) outcomes than those stressed in Figure 12 on climate change related resilience, i.e. they determine well-being, income, environmental quality etc., as conceptualised in the sustainable livelihoods framework. Thus questions around gender-GHG emissions mitigation relations and co-benefits can also be framed with the aid of this framework. A central conclusion from the research (UNDP & Oxfam Viet Nam, 2009) is the notion of opportunity, which is about co-benefits. For example, GHG emissions mitigation action must be treated as an opportunity for improving gender relations, and depending on the situation also for reducing vulnerability of women and their households to climatic shocks and stresses.

The concepts and relations in Figure 3 and Figure 4 suggest that the following basic questions may be asked in assessments of community-based climate change initiatives that focus on sustainable and green development, including GHG emissions reduction but expecting a range of social, economic and environmental co-benefits

(compare also with the scoring sheets in Annex III):

a. **Were greenhouse gas (GHG) emissions reduced,** and/or were carbon removals increased? And which was/were the main approach(es) to achieve that (in forestry, agriculture, non-agriculture livelihoods, manufacturing or repair units, homes, etc.)?
b. Apart from GHG emissions mitigation, which **other (livelihood) outcomes (co-benefits) of the targeted social groups,** communities were achieved (e.g. increased income, well-being, social/gender/ethnic/age equity, sustainability of natural resources, reduced vulnerability, etc.)? Numbers of people whose livelihood outcomes improved?
c. Were **local institutions and policy implementation strengthened** and did that improve social/power relations in the context of GHG emissions mitigation and/or climate change adaptation actions? For example, was women's entitlement to land, forest, or credit strengthened?
d. **Which lessons were learned** about the implementation and effectiveness of the programme of actions (approaches, methods) that led to reduced emissions and the various co-benefits?

AII.4 The CCWG, CBCCIs and climate change advocacy

The CCWG, along with a network of Vietnamese Non-Governmental Organizations and Climate Change (VNGO&CC), has agreed memorandums of understanding on coordination and information sharing with the Department of Meteorology, Hydrology and Climate Change acting for the Ministry of Natural Resources and Environment (CCWG-MONRE, 2011) and the Office of the Steering Committee for Climate Change Adaptation and Mitigation (OCCA) of the Ministry of Agriculture and Rural Development (MARD) (CCWG-MARD, 2015), which enhances dialogue with policy makers and provides opportunities for NGOs to share their very wide experiences in localities at the national level.

The CCWG's assessment of climate policy in Vietnam is that national policies are comprehensive, but that policy implementation and inclusiveness can be improved, particularly at the local level. In addition, the CCWG identified capacity gaps of Vietnamese officials working on climate change; a lack of interest in community-based adaptation even though many good models have been developed; and a lack of interest in gender responsive climate change adaptation (CCWG, NoDate).

The CCWG has the following advocacy goal to 2020 (CCWG, 2015):
The Government integrates, resources & implements community based adaptation initiatives in at least 22 provinces at risk by 2020.

In the short run (2015-16), the CCWG aims for:
The government of Vietnam officially acknowledges the role of community based initiatives (CBIs) in planning and implementing climate change action plans (CCAPs) as key for building resilient communities (by inviting community representation in planning processes or inclusion of CCWG recommendations in formulating national policies).

This should be achieved by influencing specific policy areas, including those related to general climate change policy (under the Ministry of Natural Resources and Environment, MONRE); green growth policy and climate change mainstreaming in the national Social Economic Development Plan (under the Ministry of Planning and Investment, MPI); and agriculture, forestry, the New Rural Areas program and other climate related policy under the Ministry of Agriculture and Rural Development (MARD).

These objectives were informed by the Joint Principles for Adaptation (JPA) (Southern Voices on Adaptation, 2015) (see Figure 13). The JPA is a normative framework that was developed by a large number of NGOs operating in many different countries and contexts, stressing that "national frameworks for climate change adaptation are more equitable and more effective" if they fulfil all or many of the principles and the related criteria.

Figure 13. Joint Principles for Adaptation (JPA) vs.3, and related criteria for equitable and effective climate change adaptation policy (Southern Voices on Adapatation, 2015)

Principle	Criteria
A. The formulation, implementation and monitoring of adaptation policies and plans is participatory and inclusive	1. Multiple stakeholders (including, but not limited to civil society, sub-national governments, research institutes, academia, private sector, and indigenous peoples) participate in defining options and priorities as well as in implementation and monitoring
	2. The knowledge and experience of local communities and indigenous peoples is incorporated
	3. Plans and policies are publicised in ways that local people can understand and engage with
B. Funds for adaptation are utilized efficiently and managed transparently and with integrity	1. The implementation and financing of plans is periodically monitored by a body on which civil society is represented
	2. Adaptation funding is made available through a transparent process of allocation
	3. There is full and free access to information on how adaptation funds are being spent (finances and processes)
	4. There is a mechanism in place to safeguard against initiatives that might have negative impacts
	5. A secure mechanism for expressing grievances and seeking redress is available
C. All government sectors and levels of administration have defined responsibilities and appropriate resources to fulfil them	1. National adaptation plans carry the authority to enable different government sectors to work in a coordinated way
	2. Existing initiatives and sector plans are enhanced to take climate change and disaster risk into account
	3. Funding for adaptation is explicitly provided for within the national budget and respective sectorial allocations
	4. Local level adaptation plans are guided by mechanisms to ensure coherence with national adaptation policies
D. Local adaptation plans are developed through approaches that build resilience of communities and ecosystems	1. Communities affected by climate change participate in defining adaptation options and priorities
	2. Local adaptation plans are formalised and integrated into the development priorities of local administrations
	3. Significant resources are allocated towards implementation of local adaptation plans
	4. Financing arrangements make commitments for multi-year programmes of support to vulnerable communities
E. The resilience of groups who are most vulnerable to climate change is promoted	1. Plans and policies address the issues affecting different groups of women, men, boys and girls
	2. Groups of people who are vulnerable to social, cultural, economic and environmental conditions are identified and targeted
	3. Initiatives take into account the differentiated needs and capacities of women and men in different age groups
	4. Initiatives promote social equity and cohesion while protecting people's livelihoods
F. There is appropriate investment in the building of skills and capacities, as well as in physical infrastructure	1. Adequate resources are made available to improve the effectiveness of institutions responsible for managing climate change adaptation
	2. Adequate resources are made available for raising public awareness and education about climate change
	3. Investment plans contain targets for developing human capacities, natural capital, and physical infrastructure
	4. The capacities of local people and their structures are developed in ways that contribute to the empowerment of individuals and communities
G. Plans and policies respond to evidence of the current and future manifestations and impacts of climate change	1. Adaptation plans consider how exposure to climate-related stresses and extremes is affecting existing vulnerabilities
	2. Vulnerability, esposure and adaptation scenarios are based on the best available science and evidence from the ground
	3. Interventions are modified as new information becomes available
	4. Climate information is made accessible to enable adaptive decision making by all stakeholders

The CCWG decided to focus its advocacy work in Vietnam on JPA principle D (*Local adaptation plans are developed through approaches that build resilience of communities and ecosystems*) and principle F *(There is appropriate investment in the building of skills and capacities, as well as in physical infrastructure)*, and it also hopes to address aspects of principle E *(The resilience of groups who are most vulnerable to climate change is promoted)*. It developed a short list of (draft) advocacy messages related to climate policy and policy implementation in Vietnam. These draft messages are related to some of the criteria under the JPA, but there are also differences, in particular as some of them are not Vietnam specific but target the international community (see Figure 14).

Figure 14. Draft policy advocacy messages of the CCWG (CCWG, 2015)

a. Governments should place the well-being of the poorest and most vulnerable people at the core of any climate action.
b. Localised and participatory planning is key to building climate resilient communities.
c. Communities must be consulted and included in all stages of planning and implementation of Vietnam's climate change action plans.
d. Women must be consulted at all stages of design and implementation of climate action.
e. The Government of Vietnam must integrate, resource and implement community based initiatives in the most vulnerable provinces.
f. Developed countries must give financial and technological assistance to Vietnam to build resilience of its most vulnerable populations.
g. The 2015 climate [Paris] agreement must make a significant contribution to delivering an adaptation approach that adequately responds to the immediate needs and future threats for particularly the most vulnerable developing countries, communities and ecosystems.
h. Adaptation must be treated with the same priority as mitigation in the 2015 climate [Paris] agreement.
i. Well-designed climate action policies can promote and enhance the capabilities of the most vulnerable to climate change, usually local communities and disadvantaged people.

The primary question is how to assess whether the CCWG can achieve or will have achieved its own goal and aims. For the effectiveness of the CCWG as a network and its advocacy work in Vietnam, a number of common characteristics of effective policy-influencing may be highlighted, as represented in Figure 15.

Regarding advocacy tools such as a report with CBCCI case studies or a "policy brief", a fairly unique study found the following (Beynon et al., 2012:3):

- A policy brief has little effect on changing the beliefs of readers who held strong prior beliefs, but it has some potential to create evidence-accurate beliefs among readers holding no prior beliefs.
- The impact of a policy brief seems to be independent of the specific form of the policy brief, but different versions, for example with or without opinions of authorative sources, do prompt different actions of the readers
- Factors such as the gender of the reader, their self-perceived level of influence, and the extent to which the reader feels convinced by the brief are also linked to action (or not).

Figure 15. Common characteristics of effective policy-influencing

Those wanting to engage with policy processes should:

- Agree on the objectives of their policy influencing;
- Have a good understanding of how policy processes work (nationally, internationally), including a good understanding of politics, which enables for example the identification of policy influencing opportunities;
- Develop a "theory of change" of specific policies or policy areas based on in-depth understanding of the policy processes, which will involve different influencing approaches and policy-stakeholders / social actors;
- Do or access high-quality policy-relevant research and document (project) experience, in order to build up credibility and legitimacy;
- Success in achieving impact on policy depends partly on whether there is a clear demand for policy-research and evidence (amongst certain policy makers or societal groups), and this demand must be identified and/or established;
- Create partnerships with policy makers, engaging them throughout a research / learning process;
- Link policy-research with high level policy events, and create policy dialogues with key partners, to deliver critical messages;
- Identify key-networkers and establish informal contacts, amongst national policy-stakeholders as well as for example international donors;
- Communicate information effectively to policy makers and also to the public and/or specific target groups such as professional groups or businesses, using modern communication technology, multiple channels including various media outlets, and materials;
- Use different materials (tools) related to different influencing-approaches, which can include policy briefings (approach: advising), petitions (approach: advocating), direct communication with e.g. policy makers (approach: lobbying), and direct action (approach: activism).

The above should prompt questions that need to be asked in the design of a climate policy influencing strategy as well as for the use of some specific influencing tools, and for any assessment or evaluation thereof. This includes the following general questions:

a. Did the CCWG achieve its advocacy goal and aims (to 2020; or by 2016)? To what extent?
b. What were the effects or impacts of the CCWG and/or of its members on formulation and/or implementation of specific climate change policy processes and policies?
c. What lessons were learned about the comparative effectiveness of specific policy influencing strategies and tools applied by the CCWG and/or of its members?
d. What **lessons were learned within any specific CBCCI about climate policy influencing** at the national or provincial level? (compare also with the scoring sheets in Annex III)
e. What influence on (specific) policy makers and (specific) policies can be attributed to a specific policy brief (related to one or more CBCCIs)?

ANNEX III TEMPLATE AND SELF-SCORING SHEETS FOR DOCUMENTATION OF COMMUNITY-BASED CLIMATE CHANGE INITIATIVES (CBCCIS)

AIII.A TEMPLATE FOR WRITE UP

[total length maximum 2,000 words in English, including everything]

1. Title: express the main feature of this CBCCI in a short title
2. Context 1: Socio-economic (livelihoods) characteristics; policy / institutional aspects; analysis of influential interest groups / stakeholders
3. Context 2: Climate change effects, risks; and /or greenhouse gas (GHG) emissions mitigation potential
4. Expected Outcome: what was the main problem/ challenge that was addressed, and what was the overall expected outcome of the intervention? Who were the main target groups / beneficiaries of the intervention?
5. Activities: what was done (=activity), how (=methodology), and by who (=a stakeholder), in order to achieve the Outcome?
6. Results: what are the main (local, non-local) effects and impacts of the activities? Results may be specific for women, ethnic groups, and children. Results may also be in terms of change in (e.g. gender) relations and (e.g. community) institutions addressing climate change challenges. Include “cases in boxes: human interest stories” that illustrate results.
7. Lessons, conclusions, recommendations: what were the primary successes, failures, strengths and weaknesses of this CBCCI? what was learned from this initiative, for doing better locally and for improving related national or provincial policy on climate change?
8. Resources: list the main review/evaluation reports, communication materials, monitoring data, web links, etc. Refer to these resources in the actual write up, indicating a page number if the source is quoted.
9. Illustrations: include pictures with captions, source, and date and place of the picture

AIII.B SCORING SHEETS (SELF-ASSESSMENT)

a. Choose one of the following three scoring sheets, depending on your CBCCI.
b. For the CBCCI concerned, score each of the five sub-items between 1 and 5, according to the explanation of the scores below
c. Briefly explain why the CBCCI deserves your score
d. Do this at the outset of the CBCCI write-up (ref template A.) and revisit, modify those scores and explanations as you work more on this CBCCI.

N/A	■ Not applicable; or: ■ No answer can be given for lack of information
1 very low	■ (Re scoring sheet a., b. & c.) Very limited or no impact; impacts are not socially disaggregated; or: ■ (Re practice or policy = scoring sheet d. & e.) Articulated almost no lessons & recommendations, or lessons & recommendations not really valid
2 low	■ (Re scoring sheet a., b. & c.) Some impact but below reasonable expectation; or: ■ (Re practice or policy = scoring sheet d. & e.) Articulated some lessons and recommendations, with some validity
3 average	■ (Re scoring sheet a., b. & c.) Impacts as per reasonable expectation that are socially disaggregated; or: ■ (Re practice or policy; scoring sheet d. & e.) Articulated some valid lessons and recommendations
4 high	■ (Re scoring sheet a., b. & c.) Impacts are above reasonable expectation and are fully socially disaggregated; or: ■ (Re practice or policy = scoring sheet d. & e.) Articulated very well many lessons and recommendations
5 very high	■ (Re scoring sheet a., b. & c.) Impacts are far above reasonable expectation, and are both fully socially disaggregated and very well-articulated; or: ■ (Re practice or policy = scoring sheet d. & e.) Provides very interesting and perhaps surprising lessons and recommendations that are highly valid

Please note the following:

- **Disaster risk** *"derives from a combination of physical hazards and the vulnerabilities of exposed elements and will signify the potential for severe interruption of the normal functioning of the affected society once it materializes as disaster."*

- **Exposure** *"refers to the presence (location) of people, livelihoods, environmental services and resources, infrastructure, or economic, social, or cultural assets in places that could be adversely affected by physical events, and which are subject to potential future harm, loss, or damage."*

- **Vulnerability** is the *"propensity or predisposition to be adversely affected. Such predisposition constitutes an internal characteristic of the affected element. In the field of disaster risk, this includes the characteristics of a person or group and their situation that influences their capacity to anticipate, cope with, resist, and recover from the adverse effects of physical events. Vulnerability is a result of diverse historical, social, economic, political, cultural, institutional, natural resource, and environmental conditions and processes."*

- **A climate resilient livelihood** is *"a livelihood that is exposed to changing climate change shocks and stresses and that has the capacity to resist, absorb, accommodate to and recover from the effects of the shocks and stresses in a timely and efficient manner, including through the preservation, restoration and where possible, improvement of its essential basic structures and functions."*

B.1 COMMUNITY-BASED DISASTER RISK REDUCTION AND CLIMATE CHANGE ADAPTATION INITIATIVES

Title of the CBCCI:	Score
a. The CBCCI reduced vulnerabilities of specifically targeted social groups. I chose this score because (briefly):	
b. The CBCCI reduced exposure of specifically targeted social groups to climate extremes and slow impact climate change effects. I chose this score because (brief answer):	
c. The CBCCI not only reduced climate change risks (=hazard potential * vulnerability * exposure) but also had other (social, economic, environmental, cultural, etc.) benefits, including improved social equity (gender, age, ethnicity, etc.). I chose this score because (brief answer):	
d. The CBCCI articulated lessons and recommendations to improve approaches and methods for implementing CBCCIs. I chose this score because (brief answer):	
e. The CBCCI articulated lessons and recommendations re influencing of national and/or provincial policies. I chose this score because (brief answer):	

B.2 COMMUNITY-BASED FORESTRY INITIATIVES

Title of the CBCCI:	Score
a. The CBCCI reduced greenhouse gas emissions from forest degradation and deforestation and /or increased carbon removals from e.g. forest regeneration and afforestation. I chose this score because (briefly):	
b. The CBCCI improved the livelihoods of targeted social groups (increased income, well-being, social/gender/ethnic/age equity, sustainability of natural resources, and/or reduced vulnerability). I chose this score because (brief answer):	
c. The CBCCI strengthened community institutions and policy implementation, e.g. provided improved access to forestland for women, men, the community. I chose this score because (brief answer):	
d. The CBCCI articulated lessons and recommendations to improve approaches and methods for implementing CBCCIs. I chose this score because (brief answer):	
e. The CBCCI articulated lessons and recommendations re influencing of national and/or provincial policies. I chose this score because (brief answer):	

B.3 COMMUNITY-BASED GREEN AND CLEAN DEVELOPMENT INITIATIVES

Title of the CBCCI:	Score
a. The CBCCI reduced greenhouse gas emissions. I chose this score because (briefly):	
b. The CBCCI improved the livelihoods of targeted social groups (increased income, well-being, social equity, sustainability of natural resources, and/or reduced vulnerability). I chose this score because (brief answer):	
c. The CBCCI also had other benefits, including reduced health risks (for women, men, children, the elderly, the community …). I chose this score because (brief answer):	
d. The CBCCI articulated lessons and recommendations to improve approaches and methods for implementing CBCCIs. I chose this score because (brief answer):	
e. The CBCCI articulated lessons and recommendations re influencing of national and/or provincial policies. I chose this score because (brief answer):	

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Hợp tác Đức
DEUTSCHE ZUSAMMENARBEIT

Southern Voices on Climate Change

Australian Aid

ABOUT THE CLIMATE CHANGE WORKING GROUP

The NGO Climate Change Working Group (CCWG) was established in February 2008 in recognition of the fact that Vietnam is significantly affected by climate change and that NGOs are well placed to support localized responses. CCWG provides a forum for Vietnamese NGOs (VNGOs), International NGOs (INGOs), institutions and individuals to actively participate in the climate change debate and help generate sustainable responses to global warming. As the biggest network in the field of climate change, CCWG facilitates information, resource-sharing and coordination among NGOs engaged in addressing climate change across a number of sectors, scales and themes. CCWG consists of a core group which facilitates and coordinates the working group. Current core members include: the VUFO-NGO Resource Centre, Oxfam, CARE, SNV, WWF, GreenID, Live and Learn, MCD, RECOFT, SRD, NCA, Malteser International and Plan International. In addition to the core group the network forms task forces around topics of common interest. Currently, three task forces operate within CCWG: integrating climate change into socio-economic development plans; mainstreaming gender into climate change response; and resilient livelihoods/climate smart agriculture.

CCWG

VUFO-NGO Resource Centre

care

Malteser International

SNV

OXFAM