

Implementing incentives for climate resilient housing among the urban poor in Vietnam: Inception report

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Preface

The project “Implementing incentives for climate resilient housing among the urban poor in Vietnam” is funded by the Nordic Development Fund and implemented by Vista Analysis in cooperation with ISET Vietnam, Hue College of Economics at Hue University, and Women’s Union of Danang, Vietnam. The project started in late April 2016 and is scheduled to run to late October, 2018.

This is the inception report of the project and the output from the first milestone of the project.

Project Manager

Henrik Lindhjem

Vista Analyse AS

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1. Introduction

This Inception Report contains two parts: Part I on research activities and Part II on Inception week activities and revised work plan.

In Part I: Report on research activities, we report statistical data on the housing situation in Danang. We also report on previous projects that have targeted the housing sector, and former and current policies by central and local government levels in Vietnam. We discuss barriers to adoption of climate resilient housing in Danang, both from the perspective of previous literature and previous experience, and from focus group dialogues (FGDs) carried out in the inception phase of our project. Finally, we report from interviews carried out with key stakeholders during the inception phase of the project.

In Part II: Inception week activities and revised work plan, we report on the program of the inception week, which took place in May 2016 and included a kick-off workshop with important stakeholders in Danang. During the Inception week and in follow up work, the work plan was modified, e.g. to better account for the Vietnamese New Year, Vietnamese weather conditions and local preference for when to initiate housing construction. The modified work plan is summarized in the final chapter of this Inception report (with details in annexes).

Part I: Report on research activities

2. The housing market in Danang

This chapter describes the housing market in Danang, with a particular focus on typhoon damage, classification of types of housing, and ownership status and poverty rates among households in Danang. The purpose is to understand the context in which the project is set, the current vulnerability to typhoons, and to inform our design of incentive mechanisms in the next milestone. We start with a statistical analysis of the housing market, using data from the City Resilience Strategy. This is followed by an analysis of socioeconomic conditions and trends in the rate of poverty in Danang. In section 2.2 we report from consultations with key stakeholders carried out during the inception week of the project.

2.1 Descriptive statistics on the housing market in Danang

2.1.1 Housing as one of four focus areas for climate resilience building in Danang

Housing is considered as one of the most climate vulnerable sectors in Danang. In the ongoing 100 Resilient Cities Program funded by the Rockefeller Foundation to build up the City Resilience Strategy, housing is selected as one of the four focus areas.¹ According to the Focus Area 1 (FA1) Group responsible for this housing-focus area, housing damage in Danang due to typhoons and floods has been quite critical in recent years (see Table 2.1 and **Table 2.2**) in spite of efforts by the city government and the wider public in housing risk reduction.

Table 2.1 Housing damage caused by typhoons in Danang, from 2005 to 2016

Caused by typhoon	2005	2006	2009	2013	TOTAL
Totally destroyed houses	246	14,134	283	353	15,016
Partially destroyed houses (mainly blow-off roof covers, walls destruction)	2,230	107,962	8,192	7,049	125,433
Inundated houses	2,218		26,142		28,360
TOTAL	4,694	122,096	34,617	7,402	

Source: Based on the report of FA1 group under the ongoing 100 Resilient Cities Program in April 2016

Table 2.2 Housing damage caused by flooding in Danang, from 2005 to 2016

Caused by flooding	1998	1999	2007	2013	TOTAL
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¹ Expected to be available by end 2016

Collapse/swept-away houses	158	412	8	1	579
Damaged houses	564	3,651			4,215
Inundated houses	19,029	46,333	29,769	32,792	127,923
TOTAL	19,751	50,396	29,777	32,793	

Source: based on the report of FA1 group under the ongoing 100 Resilient Cities Program in April, 2016

Most of Danang's population lives in urban areas (87.3%). The city population will significantly increase in the future since the proportion of immigrants (58.8%) is more than two times higher than the emigrants (23.3%) (**Table 2.3**). This also poses real challenges to meeting future housing needs in Danang, especially in relation to vulnerability reduction and climate resilience building for the housing sector.

Table 2.3 Some basic indicators of the Danang population in relation to the national level (GSO, 2015)

	% urban population in total population	Gender ratio (No. of male persons/ 100 female persons)	% of population in age of 15-64 years old (labour age)	% of immigrant (No. of immigrants/ 1000 persons)	% of emigrant (No. of emigrants/ 1000 persons)
<i>National</i>	33.1 %	97.3	69.4 %	28.7%	28.7%
<i>Danang</i>	87.3 %	95.6	70.2 %	58.8%	23.3%

Source: GSO (2015)

2.1.2 Housing classification

In the mid-term national census in 2014, the solidity of houses is officially assessed and ranked in accordance with the type of construction materials used for the three main structural parts: walls, posts (pillars) and roof, as illustrated in **Table 2.4**.

Table 2.4 Housing solidity classification according to types of materials used for three components

	Walls	Posts (pillars)	Roof
<i>Solidity</i>	<ul style="list-style-type: none"> Reinforced concrete (RC) Brick/stone Wood/iron 	<ul style="list-style-type: none"> RC Brick/stone Iron/steel/hardwood 	<ul style="list-style-type: none"> RC Clay tile (by cement, terracotta)
<i>Non-solidity</i>	<ul style="list-style-type: none"> Soil/lime/straw Partition/wattle/plywood Other 	<ul style="list-style-type: none"> Low-quality wood Soil Other 	<ul style="list-style-type: none"> Corrugated iron/cement sheets Leaf/thatch/oilpaper Other

Source: National Mid-term Census in 2014 (GSO, 2015)

According to the above housing solidity classification, there are four types of housing, as described in **Table 2.5**.

Table 2.5: Four types of housing classified based on solid materials used for three main components

Solid house (<i>Nhà kiên cố</i>)	Semi-solid house (<i>Nhà bán kiên cố</i>)	Little-solid house (<i>Nhà thiếu kiên cố</i>)	Simple house (<i>Nhà đơn sơ</i>)
3 parts (walls, posts & roof) built by solid materials	2 out of 3 parts built by solid materials	1 out of 3 parts built by solid materials	No parts built by solid materials

Source: National Mid-term Census in 2014 (GSO, 2015)

The mid-term national census in 2014 also indicates that most Danang people live in individual houses (99.2%) of which most of these belong to the semi-solid house type (64.8%) and solid house (34.9%) (**Table 2.6**). There are very few or no little-solid and simple houses in Danang. The average housing floor area per capita in Danang is 26m² (until 1 April 2014), a little higher than the national average (20.6m²).

Table 2.6 Housing classification in Danang in relation to the national level

	Housing floor area per capita (m ²)	Classified by types of housing				Classified by forms of accommodation		
		<i>Solid house</i>	<i>Semi-solid house</i>	<i>Little-solid house</i>	<i>Simple house</i>	<i>Apartment</i>	<i>Individual house</i>	<i>Villa</i>
<i>National</i>	20.6	46.7%	43.7%	5.9%	3.7%	1.4%	98.5%	0.1%
<i>Danang</i>	26.0	34.9%	64.8%	0.2%	0.1%	0.7%	99.2%	0.1%

Source: GSO (2015)

There is an ongoing discussion regarding the solidity or safety of houses in relation to the type of materials used. It is argued that the structural stability of the house is not only dependent on the types of materials used but also influenced by the connection between building parts or structural elements. This was seen in recent typhoons (e.g. Typhoon Nari in 2013 or Xangsane in 2006) where most of the destroyed houses contained solid materials as mentioned in Table 2.4.

There are also other housing statistics in correspondence with the year of construction and form of house ownership, as seen in **Table 2.7**. It can be seen that most of the local houses in Danang were less than 16 years old (2000-present: 62.7%), followed by the age of 16-40 years old (28.9%). In terms of form of house ownership, most of Danang people have their own private house (85%).

Table 2.7 Percentage of housing in relation to construction time and forms of house ownership

	In relation to the year of housing construction				In relation to the form of house ownership			
	Before 1975	1975-1999	2000-present	Not identified yet	Private own house	Rental house	Unclear of house ownership	Unidentified
<i>National</i>	4%	36.5%	58.7%	0.7%	90.8%	8.7%	0.5%	0%
<i>Danang</i>	5.8%	28.9%	62.7%	2.5%	85%	13.6%	1.3%	0.1%

Source: GSO, 2015

According to the statistics in 2014, the total number of households in Danang is 249,146 who mostly are private own houses (211,881 households) and rental houses (33,982 households) (Table 2.8).

Table 2.8 Number of households in Danang in relation to forms of house ownership

	Total number of households	Private own house*	Rental house	Unclear of house ownership	Homeless
<i>Danang</i>	249,146	211,881	33,982	3,124	159
(in 2014)	(100%)	(85%)	(13.6%)	(1.3%)	(0.1%)

*Note that many poor and low income families customarily own their houses, but do not have the land title because they have to pay the land tax and processing fee that are costly for them

Source: GSO, 2015

2.1.3 Living conditions of local residents in Danang

The Gross Regional Domestic Product (GRDP) per capita in Danang in 2015 is 2,908 USD², significantly higher than the national GDP (2,109 USD).³ Data on living conditions from the mid-term national census in 2014 also indicate that living conditions of the population in Danang, in general, are better than the national level (Table 2.9). As seen in this table, all indicators recorded in Danang are higher than the national ones. It may be argued that the rapid economic development of the city in recent times has had a positive effect on household development and local living conditions.

Table 2.9 Tangible indicators of living condition in households of Danang in relation to the national level

	Percentage (%) of households use								
	Clean water	Hygienic WC	Electricity	Telephone	Computer	Car	Fridge	Air-conditioner	Motor-bike
<i>National</i>	89.8%	71.4%	98.6%	85%	25.1%	3.1%	59%	13.3%	84.6%
<i>Danang</i>	99.3%	98.6%	99.9%	93.5%	52.2%	6.2%	82.3%	27.7%	94%

Source: GSO, 2015

² According to the draft Plan of Socio-economic Development of Danang for 2016-2020, sourced at http://ktxh.danangcity.gov.vn/home.aspx?page=nhom-thong-ke&id=SSVN_563&category=SSVNCATEGORY28

³ Sourced at Vietnam General Statistics Office at <https://www.gso.gov.vn/Default.aspx?tabid=217>

2.1.4 Poverty in Danang and recent efforts of the city government in poverty reduction and alleviation

It can also be argued that Danang has paid special attention to the poor and near poor and mobilized resources to help these groups escape the poverty cycle and improve living conditions, including their housing. In 2013-2015, the city cut the proportion of the poor from 6.27% (in 2013) to 2.87% (in 2014), and expected the poverty rate to be lower than 1% in 2015 (currently not yet recorded for this year) (see Table 2.10).

Table 2.10 Reduction in poverty during the city's poverty reduction plan for 2013-2015

No.	District	Total number of households (in 2013)	Implementation of poverty reduction from 2013-2015 (according to the old poverty line of the city ⁴) (year 2015 has not been recorded yet)							
			2013				2014			
			New poor households	Poor households removed	Remaining poor households	% of poor households in population	New poor households	Poor households removed	Remaining poor households	% of poor households in population
1	Hai Chau	49,890	27	980	1,790	3.59	0	1,284	506	1.01
2	Thanh Khe	44,910	104	887	1,818	4.05	44	959	903	2.01
3	Son Tra	32,600	108	1,000	2,424	7.44	63	1,063	1,423	4.37
4	Ngu Hanh Son	18,940	89	839	1,507	7.96	8	921	595	3.14
5	Lien Chieu	39,020	128	1,328	2,818	7.22	77	1,370	1,525	3.91
6	Cam Le	25,670	164	961	1,307	5.09	84	843	548	2.13
7	Hoa Vang	31,200	235	1,719	3,522	11.29	79	2,155	1,446	4.63
TO TAL	242,230	855	7,714	15,186	6.27	355	8,595	6,946	2.87	

Source: City People's Council, 2015

⁴ City poverty line = 600,000 VND/month per capita for rural area; 800,000 VND for urban area (for period 2013-2017). Urban poor households: Income per capita per month (ICM) ≤ 1,300,000 VND, Urban near-poor households: 1,300,000 VND ≤ ICM ≤ 1,690,000 VND, Rural poor households: ICM ≤ 1,100,000 VND, Rural near-poor households: 1,100,000 VND ≤ ICM ≤ 1,430,000 VND.

In 2016, Danang has updated the poverty line (see footnote 4 above), to a level nearly three times higher than the national poverty line, in order to deepen the course of poverty alleviation and, thereby, gradually enhance the city's image and resilience to future climate shocks and stresses. With this new poverty line, the number of poor households has increased again, though relatively little, compared to the previous period 2013-2015. Along with setting up the new poverty line, the city government of Danang has also approved the new poverty reduction plan for the next 5 years (2016-2020) in which the number of poor households (ranked by the new poverty line) is gradually reduced over the years, from now to 2020 (Table 2.11). Similar to the poor, near poor households are also targeted in the new poverty reduction plan to help them improve and enhance their living conditions (Table 2.12). By 2020, it is estimated that there will be 1.24% poor households and 0.63% near poor households, as seen in Tables 2.12 and 2.13.

Table 2.11: Poverty reduction plan (for poor) of the city for 2016-2020

No	District	Total number of households (in 2016)	Plan for poverty reduction from 2016-2020 for poor households (according to the new poverty line of city)									
			2016		2017		2018		2019		2020	
			Poor households removed	% of poor households in population	Poor households removed	% of poor households in population	Poor households removed	% of poor households in population	Poor households removed	% of poor households in population	Poor households removed	% of poor households in population
Urban district												
1	Hai Chau	46,811	450	0.96	420	0.90	380	0.81	350	0.75	544	1.16
2	Thanh Khe	47,870	550	1.15	520	1.09	480	1.00	450	0.94	652	1.36
3	Son Tra	36,675	850	2.32	820	2.24	780	2.13	750	2.04	409	1.12
4	Ngu Hanh Son	19,950	400	2.01	380	1.90	340	1.70	310	1.55	465	2.33
5	Cam Le	29,748	600	2.02	580	1.95	540	1.82	510	1.71	107	0.36
6	Lien Chieu	39,407	900	2.28	870	2.21	830	2.11	800	2.03	510	1.29
Rural district												
7	Hoa Vang	33,664	850	2.52	810	2.41	750	2.23	730	2.17	452	1.34
TOTAL		254,125	4,600	1.81	4,400	1.73	4,100	1.61	3,900	1.53	3,139	1.24

Source: City People's Council, 2015

Table 2.12: Poverty reduction plan (for near-poor) of the city for 2016-2020

No	District	Total number of households (in 2016)	Plan for poverty reduction from 2016-2020 for near-poor households (according to the new poverty line of city)									
			2016		2017		2018		2019		2020	
			Near-poor households removed	% of near-poor households in population	Near-poor households removed	% of near-poor households in population	Near-poor households removed	% of near-poor households in population	Near-poor households removed	% of near-poor households in population	Near-poor households removed	% of near-poor households in population
Urban district												
1	Hai Chau	46,811	370	0.79	350	0.75	330	0.70	300	0.64	285	0.61
2	Thanh Khe	47,870	370	0.77	350	0.73	330	0.69	330	0.69	260	0.54
3	Son Tra	36,675	390	1.06	370	1.01	350	0.95	330	0.90	297	0.81
4	Ngu Hanh Son	19,950	370	1.85	350	1.75	330	1.65	300	1.50	215	1.08
5	Cam Le	29,748	270	0.91	250	0.84	220	0.74	160	0.54	149	0.50
6	Lien Chieu	39,407	370	0.94	350	0.89	330	0.84	300	0.76	235	0.60
Rural district												
7	Hoa Vang	33,664	300	0.89	280	0.83	250	0.74	200	0.59	156	0.46
TOTAL		254,125	2,440	0.96	2,300	0.91	2,140	0.84	1,920	0.76	1,597	0.63

Source: City People's Council, 2015

In terms of housing, the new poverty reduction plan for 2016-2020 also assesses the number of houses within the poor and near poor groups that need to be rebuilt or retrofitted (Table 2.13).

From 2016-2020, the city aims to rebuild 449 houses and retrofit 2,198 houses in the entire city in which the maximum rate of grant/subsidy is 35 million VND (\approx 1,590 USD) per newly built house and 20 million VND (\approx 909 USD) per retrofitted house.

Table 2.13: Budget plan for housing upgrade for poor households in Danang

No.	Year	No. of houses upgraded		Amount of support for new build (million VND)	Amount of support for retrofit (million VND)	Total (million VND)		Classified by sources of fund (million VND)		
		New build	Retrofit			New build	Retrofit	City's budget	District's budget	Mobilisation from society
<i>A</i>	<i>B</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5=1x3</i>	<i>6=2x4</i>	<i>7</i>	<i>8</i>	<i>9</i>
1	2016	100	450	35	20	3,500	9,000	3,200.00	1,800.00	7,500.00
2	2017	100	450	35	20	3,500	9,000	3,200.00	1,800.00	7,500.00
3	2018	100	440	35	20	3,500	8,800	3,160.00	1,760.00	7,380.00
4	2019	100	430	35	20	3,500	8,600	3,120.00	1,720.00	7,260.00
5	2020	49	428	35	20	1,715	8,560	2,398.00	1,712.00	6,165.00
Total		449	2,198			15,715	43,960	15,078	8,792	35,805

Source: City People's Council, 2015

2.2 Consultation with key stakeholders

The descriptive statistics in the previous chapter shows that the poverty rate in Danang is relatively low and living conditions are relatively good. But there are also remaining challenges. The statistics also shows that the city is continuing its work on improving living conditions and reducing poverty. However, experiences from previous typhoons show that this progress may be vulnerable to climate risk. In order to learn from existing efforts to increase resilience to climate extremes and get important input for our project, we consulted various stakeholders during our inception week in May 2016. This chapter provides an introduction to each organization/stakeholder consulted, and reports on the discussion during the consultation.

2.2.1 Consultation with Danang Climate Change Coordination Office (CCCO)

11. May 2016 at the CCCO office in Danang City Hall

Overview of CCCO: CCCO is the legal representative of the city in dealing with climate change-related issues within the city region. CCCO is also the focal point of the city and local stakeholders in planning and implementing strategies and activities related to climate change.

Participants from CCCO:

Mr Cuong, Director of CCCO

Ms Ha, Vice-Director of CCCO

Mr Quy & Mr Viet, CCCO staff

- First, CCCO introduced their work, role, responsibility and mission in Danang.
- Henrik briefly introduced the project with two main purposes:
 - To test financial incentives within the poor and near poor group: combination of loan, subsidy and possibly micro-insurance for safe housing improvement; and to motivate poor and low income people to add some kinds of mitigation measures
 - To assist WU to build their capacity, to continue and extend their revolving loan program, and to provide vulnerable households with technical assistance.

CCCO highlights:

- CCCO already has a platform to support meetings, consultations, and local surveys at multiple levels
- CCCO report directly to the Vice-Chairman of Danang People's Committee, the City's Steering Committee for responding to Climate change and Sea level rise
- CCCO have conducted lots of projects on housing, land use, water resources, etc.
- Regarding resilient housing in Danang, one is currently in progress of completing the City Resilience Strategy where one of the focus areas is housing
- Within the NDF project, CCCO hopes to test some kinds of insurance tool to improve housing resilience to typhoons and possibly plus flooding.
- Mitigation: CCCO builds up an action plan for climate mitigation, reduce CO₂ (under the 2nd phase).
- CCCO can share database on housing collected for the focus area 1 (FA1) of the City Resilience Strategy

- CCCO receives financial support from the city to do awareness raising for communities
- Set aside some finance in the project to test the mitigation measures (e.g. green roofs, solar panels, natural ventilation intensification)
- Danang has many kinds of initiatives, and what are the best initiatives for the NDF project?

Question: In collaboration with Swiss RE, who will pay the insurance premium and how?

- Still under the design of insurance packages for Danang by Swiss Re with the input from local partners
- Possibly focus on semi-permanent housing, mainly focusing on low and middle income groups
- The NDF project will test incentives for climate resilient housing, and also investigate how to scale up or extend it to the entire city
- Danang has about 1.2 million people, including migrants, and housing is quite a vulnerable sector to climate change, particularly typhoons and floods.

2.2.2 Consultation with Danang Women's Union (WU)

10. May 2016 at WU office

Remark: Although Danang WU is a partner to the project we have included a summary of the discussion with WU in this section of the report to better record the views of WU.

Overview of Danang WU: Danang WU is a civil society organisation, called the mass organisation, that represents the women's voice in a wide range of socio-economic and political agendas, from planning, decision and policy making to practical interventions. The overall goal of WU is to mobilise female/women groups in different classes and sectors in promoting socio-economic development of the city, strengthening the wellbeing of families and communities, achieving gender equality and happiness, and building the image of Danang women: solidarity, creativity, kindness, resourcefulness and having a cultural and civilised urban lifestyle.

Participants from WU:

Ms Ha, Vice-Chairwoman of WU

Ms Hanh, Vice-Chairwoman of WU

Ms Dao, WU staff

- First, Vice-Chairwoman of Danang WU (Ms Ha) welcomed the project team and hoped the PDF project will be implemented successfully in Danang.
- Ms Hanh (vice-chairwoman of WU) shared the experiences from the project of revolving loan fund for storm resistant housing under the Rockefeller Foundation initiated since 2011 (see the WU slide for further details).
- The repayment rate is 100% thanks to the close relationship of WU staff with households, fully capturing households' situation and addressing all problems triggered during implementation, if any.
- The establishment of local savings groups to increase savings for the poor at the same time of repaying debt; generate the habit of saving for the poor (not easy for them without conditional loan packages); risk management in cases

- when borrowers are unable to repay due to various reasons (e.g. death, accidents, serious illness), their savings will be used for repayment.
- The involvement of female family members in operating microcredit helps improve the women's role and position in the community and society, gradually reducing gender-related social norms or gender biases (if any).
 - WU suggested to distribute the project equally among all 56 communes/wards of the city but finally the project team decided to select 14 wards/communes, 2 per district in the total 7 districts of Danang (equally shared at the district level).
 - It was agreed that the project should not give beneficiaries too much (except for the poorest of the poor who no longer has the labor ability), otherwise it is likely to reduce their activeness in responding to climate shocks and stresses. The benefits may be in the form of combined packages where grants also go along with preferential loans or resilience-enhanced conditions to incentivize households to invest in resilience components.
 - Only allocate loan to borrowers once their old houses start to be demolished for reconstruction or retrofitting to make sure the borrowed money is used for the right purpose (housing improvement) and also to manage the time of constructing/retrofitting safe homes in accordance with the project timeframe (otherwise, it is likely to trigger unexpected delays in starting construction works due to age or Feng-Shui perception issues).
 - Focus on two groups: control and treatment where incentives for each group will vary.

2.2.3 Consultation with Danang Department of Construction (DOC)

11. May 2016 at DOC office in Danang City Hall

Overview of DOC: DOC is the official representative of the City People's Committee in the field of urban planning, architecture and construction. DOC is also the unit to consult and advise city leaders on the proposed solutions in terms of city and urban planning, architecture and infrastructure development, and building construction. DOC is also responsible for technical issues of housing programs/projects funded or operated by the city (e.g. architectural and technical design, building permit, construction quality monitoring).

Participants from DOC:

Mr Hoa, vice-head of housing management unit

Mr Khanh, vice-head of quality management unit

- First, Dr Phong briefly introduced the NDF project, the goal and scale and the expected outcomes of the project, some outstanding points:
 - Focus on the urban poor, help them to be able to access information, technologies, finance through suitable incentive mechanisms for safe housing reinforcement.
 - The purpose of meeting with DOC is to see how governance and monitoring mechanisms for low-income housing in Danang are operated and managed.
- Second, DOC showed their particular interest and hope they can add support to some extent to the success of the project, some important notices from DOC:
 - The city has assigned the Department of Labour, Invalids and Social Affairs (DOLISA) to be responsible for the wellbeing of the poor including their housing improvement.

- DOC suggested the NDF project team should help DOLISA to better understand the current housing situation of the poor, recent programs and interventions of the city to improve their housing (e.g. the city's poverty-reduction plan for 2016-2020 in which housing improvement is one of the major goals).
- At present, DOC is developing housing programs for the city so that the NDF team should collaborate with DOC and DOLISA in the scope of this project.
- The Decision No.48 of the National Government to improve housing of rural poor against storms and floods has been implemented in Hoa Vang District, Danang in the form of technical and financial supports. In terms of finance, a combination of grant/subsidy and preferential loan is provided to support the poor in rebuilding/retrofitting their shelter. In addition, an amount of household's contribution, both in-cash and in-kind, is also required to fully cover construction/renovation cost and, also, to increase the project ownership of householders. Technical requirements for disaster resilience include having a second floor with a minimum area of 12m², strong foundation, walls and roof. The team should contact DOLISA to better understand this program.
- The above program has supported 244 houses (11 newly built, 233 retrofitted). In 2016, this program supports 103 houses (4 newly built, 99 retrofitted).
- The key aspect for low-income housing improvement is to raise people's awareness on the importance of safe housing construction in development prior to or at the same time as providing technical and financial support.
- Every year, DOC sends safe housing design models to all districts in their administrative areas for awareness raising purpose. However, there is no record/assessment of how many houses have applied those models at the local levels.

2.2.4 Consultation with Danang Department of Foreign Affairs (DOFA)

11. May 2016 at DOFA office in Danang City Hall

Overview of DOFA: DOFA is the official representative of the City People's Committee to set up collaboration and partnership with external stakeholders outside the city, including international ones, to build a good image of the city in the eye of outsiders/investors.

Participants from DOC:

Ms Hanh, Vice-Director of DOFA

Ms Thao, DOFA staff

Ms Thuong, DOFA staff

- First, Dr Phong briefly introduced the NDF project.
- Second, DOFA briefly introduced some previous and current projects, particularly the ongoing ADB project for scaling up storm resilient housing in the entire city.

- DOFA emphasised the importance and necessity to help poor people in Danang to move to safer homes, and that the NDF project is really meaningful to the context of Danang at the present time.
- DOFA highlighted the importance of raising the awareness of district and commune/ward officials on climate resilience building and resilient housing development since these groups are usually the main housing implementers at the local and grassroots levels. At the city level, the governmental officials involved in the housing sector seem to be fully aware of this issue, as said by DOFA representative.
- It is also necessary to improve people's awareness on climate change and climate resilient housing construction. Currently, the level of awareness on this subject is still limited and, to some extent, may hinder efforts of building a resilient housing system, especially within the low income/poor population.

2.2.5 Consultation with the insurance company – Swiss Re/Vinare

12. May 2016 at the meeting room of Danang City Hall

Participants:

SWISS RE/VINARE Vice-general director & Ms Thanh A (2 persons)
WU representative (2 persons)
CCCO representative (2 persons)

- First, Swiss Re presented their work, the potential of applying housing micro-insurance for Danang in terms of disaster risk management/transfer.
- A Parametric home-owner insurance package was proposed as a possible insurance solution for the Danang case. However, their presentation was still general and did not provide detailed information of what the insurance package is, as was expected by most participants.
- There was a discussion after that related to whether and when Swiss Re can share the detailed information of what their designed insurance package for Danang looks like and how it can be applied and operated locally.
- Finally, Swiss Re promised to provide the detailed information as soon as possible with a condition that Danang should identify who will be the representative of the city to be the policy holder to share confidential information with.
- There was also a discussion of who will be the policy holder, CCCO or WU or one other governmental unit. To conclude, WU will be the holder for the piloting phase of 500 houses (100 NDF houses and 400 WU houses under the Rockefeller program). However, it was also agreed that the purchase of an insurance package for disaster resilient housing is optional, not compulsory, in the implementation of incentive mechanisms within the NDF project, and needs further internal review, discussions and assessments of the project team in support of local partners.
- There were some agreements:
 - Insurance is only applied for the houses that can withstand the wind level 12 (of Beaufort wind-scale) because such houses are already built with an amount of finance to upgrade their structure

and the insurance fee will be low and affordable for the poor and low income.

- Agree to use the storm data from a third party who is internationally recognised and has no influence from any sides when delivering data.
- The scale is on the entire city, but initial piloting with a possible amount of 500 houses.
- Swiss Re will provide more detailed information of their proposed insurance package for Danang so that the NDF team and local partners know exactly the premium per house, the thresholds for insurance disbursement, the amount of insurance claim if the thresholds are touched, etc. After that, the policy holder, the project team and involved local partners will have internal discussions and decide whether to continue or not or the need for further adjustment/re-calculation to have a suitable micro-insurance package for the poor of Danang in terms of storm risk transfer.

3. Background research for the design of incentives

This chapter gives a brief summary of our research so far aimed specifically at the design of incentive packages aimed at poorer house owners. The first section introduces the theoretical framework for incentives, while the next section focuses on the barriers to investment that are relevant in our context, based on experiences from previous projects and existing research. The final section of the chapter reports from focus groups and household consultations to assess the most relevant barriers in our context. This work will be continued during the next phase. The preliminary findings are important inputs into our design of incentive packages in the next phase, where the incentive packages will be designed to address the relevant barriers to adoption.

3.1 Technology adoption and barriers to investment

There is a large literature on technology adoption in developing countries, both theoretical and empirical, which is relevant for this project. A large share of the literature is on farm technologies (perhaps because returns are easier to measure), but also on mosquito bed nets, medical interventions etc. Our theoretical framework for the design of incentives is based on the economics of technology adoption (Foster and Rosenzweig, 2010). Within this framework, we view climate resilient housing as a technology that households can choose to adopt or not. In a world without market imperfections, households will adopt “profitable” technologies, where the return to the technology in our specific context is the household’s net gain from adopting climate resilient housing.

An important question is therefore: What are the returns from investing in climate resilient housing for the households we want to target with our incentives? Is climate resilient housing a profitable technology? Tuan et al. (2015) investigate this question through a cost-benefit analysis of climate resilient housing. They find positive returns to investment, even without taking into account non-monetary costs of typhoon damage and possibly increased typhoon intensity due to climate change.

A high marginal return to technology adoption indicates that there may be market failures or other problems that constrain adoption (Foster and Rosenzweig, 2010). Another question is whether returns are equal across households, for instance across poor and non-poor households, and which factors influence the returns to adoption at the household level.

If take-up of a technology is low despite positive returns, there are *barriers to investment*. Potential barriers can be divided into the following categories:

- Information barriers
 - Lack of knowledge about returns
 - Lack of knowledge about technology management
- Credit constraints
- Insecure property rights
- Behavioral constraints

3.1.1 Information barriers

In a setting with information barriers, there is under-investment when returns are high because of lack of knowledge about returns (which could be due to lack of knowledge about any of the factors that influence returns) and/or lack of knowledge about how to manage the technology (how to use the technology).

There is a large literature on learning and technology adoption, where learning is defined as a setting where new information affects adoption decisions. Learning is more likely in a setting with a new technology. Households may learn about profitability, which may lead to increased or decreased take-up, depending on what they learn, but also about how a technology works. Households may learn from experimenting with the technology, i.e. learning by doing, or they may learn from observing others that are using the technology, i.e. learning from others. The scope for learning depends on the heterogeneity of returns to the technology, that is, how returns to the technology depend on household characteristics.

3.1.2 Credit constraints

If credit markets are (near) perfect, and there are no economies of scale, household wealth should not influence the adoption of profitable technologies. In this case, households will borrow to adopt technologies that are profitable, but require up-front payments. However, lack of access to (affordable) credit is prevalent in developing countries, especially for poor households because they lack collateral (or land title or similar, see next point). In many settings, costs must be paid up-front and the (timing of) returns from investment are uncertain. In this case, wealthier households, or households with a more steady income stream may be more likely to adopt.

3.1.3 Insecure property rights

Another important question regarding the decision to adopt a profitable technology, is who will reap the benefits of the investment? Insecure property rights may prevent adoption of profitable technologies with benefits that accrue over time. This is observed in the literature on tenure security in the rural context, for instance through investigating the impact of getting land titles on investments in soil conservation measures. There is also some evidence on tenure security in the urban context, for instance Van Gelder (2012) on housing investments and property rights in Buenos Aires. A finding from this paper is that it is the perception of security, not necessarily the official property title, that matters for housing investments.

3.1.4 Behavioral constraints

Poor households may put disproportionate weight on the present, and future benefits (or avoided losses) are heavily discounted. Households may have what are known in the literature as time-inconsistent preferences: Decisions made at one point are inconsistent with preferences at a later point in time. This may prevent investment in profitable technologies that require an up-front payment. One approach to overcoming such barriers includes commitment devices, for instance offering farmers a contract where they can commit to buying inputs right after harvest. Commitment devices have also been introduced in microfinance programs, for instance in programs where households cannot withdraw their savings until a given savings target is reached.

3.2 Barriers to investment in climate resilient housing in Danang

There are a number of barriers to the investment in climate resilient housing within the poor and near poor population in Danang. These are identified through the review of relevant literature and the field experience of the Vietnam team from previous research and intervention projects. They are:

- Limited access to credit
- Limited access to up-to-date information/knowledge of vulnerability and resilience
- Insecure property right

3.2.1 Limited access to credit

The post-typhoon survey made by the ISET Team after Typhoon (Nari, 2013) in Danang, shows that pre-disaster preparedness such as building storm resilient housing through housing credit schemes is always more cost effective than post-disaster recovery and reconstruction (Phong, 2013). However, current credit systems have not met this requirement due to different types of barriers faced by the poor and low-income people in reality.

One of the main barriers for the poor to access credit is the contradiction between formal credit systems and the 'informal' life of the poor whose incomes are frequently low and unstable (UN-HABITAT & ESCAP, 2010). Formal credit systems always requires official eligible conditions to access loan such as having stable income or value-equal collateral asset (usually the land use right certificate) that are frequently out of reach for poor people.

- There are a number of local commercial banks in Danang (e.g. VietinBank, Techcombank, Vietcombank, BIDV) that have provided credit packages for housing construction/renovation but, in most cases, such credits are not interesting for and accessed by the poor and near poor groups due to high (market-based) interest rates and unobtainable collateral conditions for poor people (e.g. borrowers must have land use right certificates or evidences of stable income/long-term labor contracts).
- Credit for low-income housing improvement is usually not the targeted market of such commercial banks because they cannot apply the market-driven interest rates, and on the other side, low income people are not really interested in commercial credits due to their limited financial capacity in making timely repayment.

Currently, there are only two credit sources that can be accessed by the poor and near poor for safe housing reinforcement, but the available amount is too limited to meet the actual demand. These two sources are from the Vietnam Bank for Social Policies (VBSP) and Danang Women's Union (WU):

- From VBSP, 407 poor households have been provided preferential microcredits plus a subsidized amount under the Decision 48 of the Prime Minister to upgrade their homes according to flood and storm resistance requirements (through retrofitting and new construction). The total amount of this microcredit fund is nearly 20 billion VND and expected to be fully disbursed by end 2016.

- From WU, till April 2016, 414 households (poor and near poor) accessed credit with the credit fund of nearly 10 billion VND. However, this credit fund will be closed by end 2019 in accordance with the agreement between WU and the funder (the Rockefeller Foundation).

The feasibility study for scaling up storm resilient housing in Danang funded by the Asian Development Bank (ADB) also indicates a huge demand of external financial supports to fully cover housing credit needs in Danang. In reality, there is still a large amount of unsafe houses demanding technical improvement

⁵ compared to the number of beneficiary households above. They all need financial support (through preferential loans and/or subsidies) to incentivize their investment in climate resilient housing which is believed to bring a positive economic return to the affected households (Tuan et al., 2015). However, there is currently a lack of suppliers who can provide such forms of assistance. Credit for housing provided by the formal banking system whose interest rates are market-driven, even in huge amounts, are not attractive to the poor and near poor households. It hinders efforts of poor families to build resilient shelters and, thereby, may exacerbate their vulnerability to future storms and typhoons (Anh et al., 2014; Phong et al., 2014).

In short, credit providers transfer risk to borrowers by demanding collateral, and they usually set high eligibility conditions for loan disbursement to exclude 'high-risk' groups, usually including the poor and low income households, who are potentially unable to fully repay debt in the future. This is the main reason that narrow the accessibility of the poor and low income households to housing credit sources even though the number of such sources are quite large in the financial market.

Our experiences also show that other obstacles for allocating credit to the poor that make credit providers not interested is that each loan is small (usually called microcredit), the capital limitations for a long time with limited net benefits, the credit provider takes on more risk than when lending to higher-income groups, and complicated microcredit management mechanisms have made credit providers not so interested in approaching and allocating loan fund to such economically difficult groups. As quoted by UN-HABITAT & ESCAP (2010), the credit operation/management cost for a 100 USD loan to a poor borrower is similar to the credit operation/management fee for a 1,000,000 USD loan for a wealthy one while benefits are clearly different. This explains why most credit providers want to provide loan to higher income groups.

In the survey collaboratively done by Danang Climate Change Coordination Office (CCCCO) and Danang Women's Union (WU), over 80% out of 400 surveyed houses, mainly covered by poor and near poor families, show their particular desire to accessing a low-cost or preferential loan for upgrading their housing against storm

⁵ According to the Feasibility Study funded by ADB (2015-2016), there are nearly 30,000 houses demanding physical improvement in Danang City in the next 5 years (2016-2020).

resilience, but there is no housing credit fund for this actual demand available (CCCO & WU 2011).

3.2.2 Limited access to up-to-date information/knowledge of vulnerability and resilience

After Vietnam has opened up to the outside world from 1986, housing construction has got a remarkable change with an extensive import of new building materials and new methods of construction. Without being equipped with information and knowledge of how to build safely, they usually have not incorporated safety measures in housing structures (Chantry & Norton, 2008). This problem is called *two-fold source of vulnerability* where the wrong use of new materials may double the level of vulnerability (Chantry & Norton, 2008). Without sufficient information about safe construction, poor people in Danang tend to follow fashionable rather than resilient construction where decorative details are more important than safety-ensured elements in housing construction or renovation (ADPC, 2007).

Most statistics of housing damage after typhoons in Danang do not mention that damaged houses mainly belonged to the poor, and that their houses were usually built with simple structures without strengthening elements (e.g. closed structural frames, roof bracings) (ADPC, 2007). They usually replicated unsafe construction practice or build the same type of non-reinforced shelter (Anh et al., 2014; CECI, 2008).

In the survey of 400 households under the project Storm resistant Housing for a Resilient Danang City (2011-2014) implemented by WU, it was seen that most of the surveyed houses were not structurally reinforced according to storm resistant standards. Over 80% of the re-built houses had roof built by simple roof frames covered by corrugated iron sheets and nearly 60% had walls built without strengthening elements (i.e. posts, beams)⁶. Under the 100 Resilient Cities Program⁷, the Focus Area Expert Group 1 has identified housing credit provision as one of the key solutions to build a resilient housing system in Danang because internal financial sources are not sufficient to meet a high demand of building resilient shelter citywide.

From the local team members' experiences accumulated through previous projects in Danang, most poor families anticipated that climate resilient housing will be very costly and exceed their economic capacity. However, according to some recent studies (Anh et al, 2016; Huy, 2002), the additional cost of resilience components incorporated in the house structure fluctuate around 20-30% on average (Tuan et al, 2015). This additional cost is not a really big amount compared to damage and loss after disasters if the house is not resilient.

⁶ Based on the NDF project's kick-off meeting presentation of Danang Women's Union in May 2016

⁷ Sourced from the Danang CCCO website at <http://ccco.danang.gov.vn/126/default.aspx>, accessed Jul 2016

It was recommended that gaps between at-risk groups/households and in-field professionals (e.g. architects, engineers) should be bridged to bring basic and advanced knowledge and skills of storm resilient housing construction to the most vulnerable/marginalised groups and communities (Phong et al., 2014). From the local team's discussions with the Danang Department of Construction (DOC) and other local building environment professionals from 2015-2016, the design models of resilient housing provided by the agencies seem to be not widely applied because the fixed spatial layout and building form did not meet a diversity of land shape as well as different financial situations of low-income families.

To shorten this gap, the ADB project to identify the feasibility of scaling up storm resistant housing in Danang has developed a technical handbook of storm resilient housing⁸ where step-by-step guidelines are provided to support self-design and self-build of resilient shelter at the local levels. This approach has been consulted with a wide range of local stakeholders and is strongly believed to a useful practical reference guide for local builders and households in building resilient shelter.

3.2.3 Insecure property right

One of the biggest challenges found in recent housing programs in Danang (e.g. VBSP, WU-operated programs) is the lack of land use right certificates, locally called *sổ đỏ* (red book), within the group of poor and near poor households. There are three main reasons resulting in this problem according to the reviewed documents (WU project reports, DOLISA documents) and our experiences captured from previous projects in Danang, as follows:

- *The high cost of applying red books for the poor.*

As in our discussions with poor families in Danang, the average cost of applying a red book range from 10 million to 15 million VND (500-750 USD) on average that was really a big amount of money for poor people.

- *The lack of supportive mechanisms from the municipal authority/legal system to assist poor people in acquiring red books.*

The WU reports within the project *Storm Resistant Housing for a Resilient Danang City* from 2011-2014 coupled with our in-field experiences shows that procedures and fees to apply and getting land use right certificate are the same between the poor and wealthy. Within a limited finance, poor families tend to reduce their daily expenses as much as they can and costs of getting red books from the city government is excluded from their prioritised spending in most cases. Incentive forms for poor households in getting red books such as lower fee for red book application or longer term payment period have not been applied yet.

- *The slack local governance/discipline in controlling low-income house construction through building permit.*

⁸The book is expected to be available online in early 2017.

According to the regulations, all houses built or renovated in urban areas must have building permit before implementation on site, and, having red book is one of the eligible conditions to apply red books. However, the slack governance/control system at the local level has allowed illegal/informal housing construction practices and, thereby, not motivated people, (especially the poor), in quickening their process of getting land use right certificate even though the city government plans to granting red books for all legal residential land.

In the final report of the project Storm resistant housing for a resilient Danang City funded by the Rockefeller Foundation from 2011-2014, the secured property right is still a challenge for the poor and near poor people in which 114 (34%) out of 329 beneficiary households have no land title or red book for their residential land⁹.

In Vietnam, according to (Anh et al., 2014), residential land use right certificate is usually obtained through two ways:

- Allotted and leased land-use rights: allotted land (*giao đất*) for residential purpose is only for non-commercial organisations, family households and individuals. Residential land holders are allowed to transfer, bequeath, lease or mortgage their land to others.
- Land transfers: land transfers (*chuyển nhượng*) are usually done between individual households according to the market price even though the civil code requires such transfers to be based on the price formula stipulated by the Ministry of Finance.

Land use right certificates are granted to households once they provide documentary evidences of their officially recognised land (e.g. land tax payment receipts) or demonstrate long-term occupation. Since 1994, the red book has been issued together with on-land house ownership, locally called *sổ hồng* (pink book) (Anh et al., 2014).

3.3 Focus groups and household consultations to assess barriers to adoption

3.3.1 Introduction

The FGDs (focus group dialogue) aimed to identify main barriers faced by poor and near poor households in Danang in improving their housing against climate risk. The participants included households (poor and near poor), local builders, representatives from Ward People's Committee and Ward Women's Union.

⁹ Based on the project final report shared by Danang Women's Union in May 2016

Table 3.1: The FGDs in Man Thai Ward and Hoa Nhon Commune, done on 29 Jul 2016

<i>Man Thai Urban Ward</i> (in Son Tra District)	<i>Hoa Nhon Rural Commune</i> (Hoa Vang District)
  <p><i>Time: 8h-11h (morning)</i></p>	  <p><i>Time: 14h-17h (afternoon)</i></p>

Overall, most participants agreed that there are several major challenges or barriers to their housing improvement, from financial and technical to social issues. However, there is also a slight difference between rural and urban areas since the contexts are different and household's financial situations are not similar (e.g. labour cost in urban is higher than in rural areas, income of rural households is lower than urban ones), as further discussed in the next sections.

3.3.2 Credit barrier

In both urban ward and rural contexts, the biggest barrier to investing in climate resilient housing within the poor and near poor is finance, particularly the lack of low-interest loans to improve low-income housing. Poorer households, in addition to being accessed to low-interest loans (should be equal to or lower than the rates set by Vietnam Bank for Social Policies), expect to have a small subsidy/grant to incentivise their housing-credit engagement as well as longer loan terms (or smaller amounts of their monthly payment). As reported by them, about 400,000 - 600,000 VND per month payment is affordable for poor households and 600,000 - 800,000 VND per month is affordable for near poor households.

In addition to the lack of preferential or affordable housing (micro) credit for the poor, there is also the issue of eligible conditions (e.g. collateral assets, land use right certificate) for credit access that, as expected by local households, should be more

flexible and obtainable to poor people. Specifically, the conditions related to land use right certificate (red book) may be transferred to other similar forms such as the provision of land tax payment receipts and/or official confirmation letters from local authority.

It was found that even within the poor group, there are also different sub-groups with different financial capacities in terms of family savings and the possibility of mobilising from others. Some poor families have many better-off brothers/sisters who can mobilise more finance than other families who have very few or no better-off relatives. However, to mobilise such financial sources, they need a kick-off initiation such as a housing credit/subsidy amount to convince their potential lenders. When thinking of housing upgradation/improvement, poor families usually have a saving amount (regardless of large or little), and therefore the 'kick-off' finance (e.g. grants, low-interest loans) is a 'motivational touch' to encourage the family in spending such savings combined with the mobilised finance from their relatives/friends on housing improvement.

In short, the actual need of credit for housing improvement within the poor and near poor population in reality is high although there has been no survey of how many households demanding housing credit so far. Given the explanation for this, the representative from the ward and commune governments reported that all ongoing and already done projects related to housing microcredit always received sufficient applications from registered households within a short time right after the announcement. It means that the need in reality is high and current credit provision for low-income housing improvement is not sufficient to meet the demand, as believed by these local staffs.

Afraid of big loan

Despite a real interest to housing credit, poor households are often afraid of receiving big loans due to their worry of undoable repayment. Reported by local respondents, when accessing bigger loan, most people are happy due to having more money. However, when thinking carefully, their economic constraints may hinder them to go further and, in most cases, they would not take loan if the loan size exceeds their repayment capacity. In some previous microcredit projects (e.g. credit programs on livelihood development, vocational promotion) where payment delays usually happened to the households who received big or unrepayable loan sizes for them, as said by some respondents.

It was identified that a loan size of 50 million VND per household (€ 2000) is reasonable for the poor of Danang at the present time to address current material and labour cost and the repayment capacity of this group.

3.3.3 Information barrier

The second barrier faced by poor and near poor households is the lack of risk information and technical guidance on how to upgrade the existing houses to climate resilient ones. Although the city has delivered several design models of resilient housing, most of these are not widely applied in local construction practice due to various reasons such as different shapes of land, different functionally spatial needs of households (even in the same poor group), or high cost of building such models. Instead, they tend to be familiar with the *family-tailored* approach where their house is designed based on their need and capacity. This may incur a design fee due to hiring a designer (i.e. architect, engineer) to develop the house design that, from a financial angle, is higher than the financial ability of most poor households. Such design fees

were fully or partially covered by donors in previous housing programs for poor and near poor people (e.g. in the Women's Union storm resistant housing program in 2011-2014 or the post-typhoon housing reconstruction project funded by Save the Children UK in 2007).

For some households who had their shelter self-built or -repaired, as said by local builders and ward/commune government representatives, they tended to put more focus on 'fashionable' rather than 'resilient' components such as concentrating on decorative parts of the house rather than safety-related elements (beams, posts, bracings). It was explained that local households and local builders often have little or no information and knowledge on how to build/retrofit resilient shelter and, at the same time, local social aspirations towards housing are frequently inclined to aesthetics/appearance rather than technical performance of the house.



Figure 3.1: FGDs participants in Hoa Nhon Commune

Alternatively, the respondents supposed that local residents' awareness is now improved generally and they are able to self-organise and self-design their houses if reference/guiding materials allow their full understanding of what technical aspects (e.g. cyclone-proof construction techniques) are needed to integrate in their house structure and, at the same time, technical training is regularly provided to them to ensure their proper use of such guiding materials. By this way, the cost of technical design will be reduced and affordable for the poor while their senses of ownership and empowerment can be maintained¹⁰. However, such materials are not common at the present time except for the technical handbook of storm resilient housing currently

¹⁰ The payment of 1,000,000 VND per month for technical design is still high for the poor so that, in Women's Union Program, most of beneficiary households are near poor (51/56 beneficiary households are near poor in Hoa Nhon Commune), as reported by the Head of Hoa Nhon WU.

being developed under the ADB-funded feasibility study for scaling up storm resilient housing in Danang¹¹.

The other issue that was raised by the group discussion participants is the slow onset climate impacts (e.g. heat wave) alongside the rapid onset ones (storms, floods). Explained by householders, storm and flood only happen in a short time of the year while the heat and dampness generated by the hot-humid climate have considerably affected their everyday life, particularly their health, comfort and productivity. Some storm-proof houses built in the previous projects, even structurally safe, are still hot in summer and wet in winter due to the lack of climatically responsive design solutions (e.g. natural ventilation intensification). Thus, such slow onset impacts of the climate change are also critical to their life and living conditions, but not much mentioned in the literature. Information and knowledge on these are quite limited in current documents/reports and, therefore, unknown to most local people.

3.3.4 Labour barrier

The third barrier identified by FGDs is the labour cost that is also a big challenge to the poor, particularly the very poor who no longer has labour ability for income generation. Some families who have a strong social capital (social relation) are able to borrow workdays of their relatives, friends or neighbours, or hire them with a lower labour cost than normal price or be offered some workdays. It is also identified that the lack of available labour during the 'hot' time of construction (usually from May to August) where rain is much less than other times of the year is also critical in some places such as in *Hoa Nhon Commune*.

The average cost to build a safe house at the present time in urban area of Danang is about three million VND per floor square metre including labour cost, as shared by local builders. However, this cost may be lower if the house owner can mobilise the help of their relatives, friends or neighbours in the construction work. Common forms of help includes the borrow of some workdays and, to compensate, the owner has to return the same number of workdays in housing construction/renovation of their lenders, or in the form where their relatives, friends or neighbours will charge a cheaper labour cost compared to normal labour price. This is the way that people usually apply to reduce the labour cost or overcome this (labour) barrier. However, this is not happening everywhere in Danang, especially in the modern life where time for social relation/community ties is likely to be reduced and such social capital and voluntary help may be narrowed or absent in the future, as supposed by some respondents.

¹¹ This project has been implemented by the Danang Department of Foreign Affairs (DOFA) under the financial support of the Asian Development Bank (ADB) to identify possible ways of scaling up storm resilient housing to the entire city of Danang. This project will be completed by end August 2016 where the technical handbook of storm resilient housing will be available for the wide public.



Figure 3.2: FGDs in Man Thai Ward

3.3.5 Poor households often put disproportionate weight on the present

Poor households usually put an imbalanced or disproportionate focus on their investment in which housing improvement is normally not among their first priorities due to no income generation from housing construction/renovation. In the budget plan of a poor family, as exemplified by a participant from *Hoa Nhon* Commune, the highest focus is given to agriculture production, everyday food and children education. Housing renovation is also demanded, but financially unavailable because of lack of money.

From an analytical view, this poses a question of local perception on cost and benefit of climate resilient housing. In most cases, poor families only see the cost but not realise the benefit of investing in climate resilient housing since no income is generated from this compared to other investments (e.g. investments in livelihoods, shop, business). People are usually unaware of how much they will pay if a storm or flood destroys their house and breaks their everyday life. In fact, the benefit of investing in climate resilient housing is not similar to other investments to the extent that the benefit of investing in climate resilient housing is not seen through the avoided loss in future disasters. Some studies (e.g. Tuan et al., 2015; Anh et al., 2016) have identified such avoided losses are significant to vulnerable households, particularly the poor, and make resilient housing investment become feasible and economically returnable in stabilising household and community development.

3.3.6 Afraid of investing in profitable technologies that require an upfront payment

Profitable technologies in terms of low-income housing is the application of solar panels, rainwater collection systems, or 'green' area/roof where users have to pay an amount upfront but can save money in the future (the longer future, the bigger benefit). Actually, when being asked, most participants supposed that such profitable technologies are more appropriate to the middle and high income groups who are able to spend an amount of money upfront for buying equipment and on-house installation. They more or less know the profit of such technologies, but the high cost of installing these systems has hindered the poor and near poor in practical implementation.

3.3.7 Urban planning not supporting resilient housing investment

A portion of households who live in the transitioned or planning areas, usually non-residential, will be uninterested in upgrading their housing even if it critically deteriorates. It means that households living in such areas will be displaced or relocated to new areas and, therefore, their land tenure is not protected. This problem also generates other problems related to building permit where the in-charge governance bodies will not grant building permit for the land located in planning (non-residential) areas. This hinders households in rebuilding or repairing their homes, even if a technical improvement is realistically positive.

In some planning areas, even already approved, but not yet implemented plans are locally called 'hanging' planning. This is also a barrier to households in improving their housing, since they are not fully compensated while their downgraded houses are not allowed to be rebuilt or renovated. Such problems are commonly seen in the peri-urban or rural-urban transitioned areas where former residential land was transformed to non-residential purposes (e.g. commercial, industry, tourism) without sufficient compensation for displaced households.

4. Previous and current projects and policies relevant to our work

As a backdrop to our project it is of interest to know former and current projects as well as policies that bear on the situation of housing in Danang. Section 4.1 reviews projects, section 4.2 reviews relevant policies.

4.1 NGO Projects

Rockefeller Foundation Project

Storm resistant housing microcredit project

From 2011 to 2014, Danang Women's Union was funded by the Rockefeller Foundation (RF) to kick off the microcredit program for building storm resistant housing for poor and near poor households in Danang. Total original principal from the beginning was 5.1 billion VND and, until now, 9.95 billion VND (2 terms of revolving).

The key aspect of this project is to help poor and near poor families to upgrade their housing through reconstruction or retrofitting against storm risks. A loan unit of 30 million VND for reconstruction and 15 million VND for retrofitting was provided to beneficiary households along with their cash and in-kind contribution to fully finance the construction/retrofitting work. The loan term is 5 years for reconstruction and 3 years for retrofitting, and according to WU staff this is affordable and payable to the poor and near poor without critical effects on their everyday life.

Till 30 April 2016, 237 new houses were built and 177 houses were retrofitted, of which, 70% is for near poor and 30% for poor households. In the program, there are 20 extremely poor households who no longer have income generation ability receiving a grant for safe housing reinforcement. WU provided an amount of 5 million VND and a free technical design combined with 30 million VND provided by the Vietnam Fatherland Front.

Technically, a local architecture consultant was hired to provide housing designs for each household with the charged cost of 1 million VND per house. Initially, this cost is covered by the RF but after 3 years, this cost is paid by the revolving loan operation that incurs an increase of loan interest rate in the next 3-year term (2014-2017) to cover technical design cost. This also generates some negative impacts on people's perception because the interest rate is higher than the one provided by the Vietnam Bank for Social Policies (VBSP).

Lessons learnt from the project is the importance of climate resilient housing in stabilising the life of poor and near poor people, evidently seen after Typhoon Nari in 2013 where all the project houses remained intact while other houses nearby without structural reinforcement had got a serious damage. This project greatly supports poor households in escaping the poverty cycle and gradually upgrade their living conditions, and is also a good practical example to improve local awareness on resilience building.

Another lesson is the technical issue where the integration of a 'strong' room, built by reinforced concrete slab and pillar, inside the house is extremely important for the future climate situation that is increasingly unpredictable in terms of frequency and

intensity of windstorms. This room is a safe shelter for super typhoons where the house, even being reinforced, still collapses and occupants are not evacuated yet.

Here is a summary of the programme:

- The project called “*Danang Priority Infrastructure Investment Project*” funded by the World Bank for 5 years (05/2008 - 06/2013)¹²
 - One part of the project was the provision of a housing microcredit fund of 1 million USD (equivalent to 18 billion VND at that time) for both new built and retrofit
 - By 2013, the total microcredit amount was 28.320 billion VND with 1,989 loans disbursed at the interest rate of 4% per annum and loan term of 3 years
 - Repayment rate was nearly 100%
- From 2011 till present, WU has run a *revolving loan fund for storm-resistant housing* within the poor and near poor groups funded by the Rockefeller Foundation. Some key results from this program, until 30 April 2016, include:
 - Total 414 beneficiary households:
 - 30% poor and 70% near poor
 - 36% skilled workers/labour, 29.7% unskilled workers/labour, 24.6% small traders/vendors, and 9.7% farmers
 - 42.8% new houses and 57.2% retrofitted
 - Total microcredit amount is 9.95 billion VND (≈ 452,272 USD):
 - Original capital: 5.1 billion VND (for 255 initial households)
 - Revolving capital: 4.85 billion VND (for 159 households later on)
 - Establish 27 local saving groups
 - Provide technical design for each household according to their actual living needs and economic ability:
 - Provide 390 new designs (for houses not yet had design drawings)
 - Assess 102 old designs (for houses already had design drawings)

¹² Source: Report No: ICR00002796, published by the World Bank, Dec 2013, sourced at http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2014/01/10/000333037_20140110145922/Rendered/PDF/ICR27960P086500IC0disclosed01080140.pdf

- 100% repayment rate
- 244/245 houses remained intact after Typhoon Nari in 2013 (only one house damaged due to unfinished construction)
- 35 million VND¹³ (≈ 1,590 USD) provided to each extremely poor household (20 households totally) as the grant/subsidy plus a free housing design per household

ADB project

This project lasts from Aug 2015 to Aug 2016 to examine the feasibility of scaling up storm resilient housing to the entire city based on the success of RF-funded safe housing microcredit implemented by WU. This project comprises two components: technical and financial, as described below:

Technical component

The key aspect of this component is the development of a handbook for storm resilient housing that is understandable to normal persons, feasible to the local context of Danang and doable for local construction practitioners/builders. Another aspect of this component is the development of a mechanism to mobilise technical agencies/units in Danang to engage in scaling up storm resilient housing.

Financial component

This component identifies the financial feasibility to scale up storm resilient housing models to the entire city through a feasible microcredit scheme, the quantity of households in need of a technical improvement, the amount of financial capital needed, and the potential local financial partners/institutions, as follows:

- Total number of houses in need of technical improvement in Danang from 2016-2020: 29,981 houses of which 27,334 houses need external financial support for improvement
- The proposed microcredit scheme for scaling up storm resilient housing:
 - Loan unit:
 - New construction: 50 million VND per house
 - Retrofitting: 30 million VND per house
 - Interest rate:
 - Poor households: 0.55% per month
 - Near poor households: 0.66% per month
 - Loan term:
 - New construction: 76 months (for poor) and 52 months (near poor)
 - Repayment method:

¹³ 5 million VND from WU + 30 million VND from Vietnam Fatherland Front Committee

- Monthly payment of principal and interest
- Monthly payment of interest and periodical payment of principal (e.g. after 6 months, 12 months)

Insurance/Swiss Re

In Vietnam, disaster risk insurance is still a new approach, particularly within the housing sector. Within the 100 Resilient Cities Program funded by the Rockefeller Foundation where Danang is one of the selected cities, insurance for building resilient housing system is potentially considered as one of the key focuses. However, this project is still under negotiation between the insurance provider, called Swiss Re, and Danang local partners. There is still a gap between the expectation of Danang City and the insurance provider.

The point within this insurance tool is the obligatory involvement of the city governments in purchasing housing damage insurance. As in the discussion with Swiss Re in May 2016, the insurance provider requires a city governmental body such as Women's Union or Climate Change Coordination Office to take the role as the representative for the intended insured group/area based on parametric calculations (parametric insurance) in buying insurance and claiming compensation. Within this calculation, the involved households and communities are able to be compensated in case a storm crossing the agreed thresholds visit the city regardless of levels of damage of local houses. The storm thresholds for compensation claim have to be provided by an independent third party who is agreed by both sides, insurance buyer and seller, to deliver data on the storm.

Vietnam Fatherland Front

The involvement of Vietnam Fatherland Front in poverty reduction and community development is mainly through the operation of the *Fund for the Poor* where housing improvement/upgradation for the poor is one of the key targets. Only poor households can access this fund. Through this program, only grant or subsidy, not (micro) credit, is provided to the poor for their housing construction/renovation. Design of housing is provided by Danang Department of Construction, but in the form of encouraging, not forcing, people to follow. There is no supervision and evaluation of technical issues related to disaster resilience. Some households follow but some do not follow the design.

About 100 houses are technically upgraded per year from 2011-2015 on average. In the budget division, the national budget fixes its contribution of 40% to the fund that provide a grant/subsidy of 30 million VND per household on average for housing retrofitting or reconstruction. The selection of beneficiary households is done through Vietnam Fatherland Front Committee at multiple levels under the final approval of Danang Department of Labour, Invalids and Social Affairs (DOLISA). Housing programs implemented and managed by Vietnam Fatherland Front are only in the form of subsidy/grant rather than (micro) credit such as the grant of 30 million VND provided to 20 extremely poor households in the housing program of WU mentioned above.

Save the Children UK

After Typhoon Xangsane in 2006, 88 houses were rebuilt in Danang with the financial support from Save the Children UK. With the technical support of the Central Consultant Architecture Company based in Danang, the construction cost of those 88

houses were quite low and affordable to the affected households who mainly belonged to the poor and near poor groups at that time.

Lessons learnt from this project is that upgrading existing housing structures to storm-resistant houses, if proper methods of construction are applied such as the use of ring/continuous beam at the foundation and roof levels, the split of large gable walls, or the cutting down/hiding of roof extension edges, are technically and financially feasible. However, the use of construction contractors outside the community, as done in this project, made the cost of construction increase, dissatisfied beneficiary families, and reduced senses of ownership and empowerment given to occupants (Anh et al., 2014).

4.2 Government policies and projects

Policies, programs and projects on low-income housing in Danang

Decision 140/2005/QĐ-UBND issued by the City People's Committee on 3 October 2005 to approve the plan of having home for local residents in Danang for the period of 2005-2010:

- Clear temporary houses in Danang
- Re-arrange residents between residential areas in relation to urban infrastructure improvement so that people's living conditions are gradually improved.
- Serve the city's major program, called the 'three-have' program (have house, have job, and have a cultural urban lifestyle) (*chương trình 3 có: có nhà ở, có việc làm, có nếp sống văn hóa-văn minh đô thị*)
- Till mid-2009 (after 3 years of implementation), the city already built 3,484 apartment flats, equivalent to 174,200 m² floor area¹⁴.

Decision 3882/QĐ-UBND issued by the City People's Committee on 26 May 2009 to approve the project of building 7,000 apartments to serve the plan of having home, specifically:

- Build 7,000 apartments from 2009 to 2010
- The average floor area of each flat was 50-70 m²
- The average height of each apartment block/building was 5-7 stories
- Total investment fund was 1,400 billion VND¹⁵, mainly from national and city's budget (80%). The rest 20% was mobilised from society.

¹⁴ Sourced from the Decision 3882/QĐ-UBND issued by the City People's Committee on 26 May 2009

¹⁵ Equal to 63.6 million USD

- Average investment per flat of 50m² was 200 million VND¹⁶

Under the Decision No.48/QĐ-TTg promulgated by the Prime Minister on 28 August 2014, Danang has supported 407 houses (23 newly built and 384 retrofitted) from 2014-2016 in Hoa Vang district. Some important aspects of this national program:

- Only focus on rural poor households ranked by the national poverty line for 2011-2015¹⁷
- Each household receives a subsidy of 12 million VND (from the national budget) and a loan of 15 million VND (from Vietnam Bank for Social Policies) for the loan term of 10 years with the grace period of 5 years
- Technical requirements for housing construction/retrofitting:
 - The house must be higher than the highest flood level in the past
 - The minimum usable floor area is 10m²
 - The main structure of the house is as strong as the solid structure
 - The roof must be strong enough to withstand storm wind

The Resolution 123/2015/NQ-HĐND adopted by the City People's Council on 10 December 2015 to approve the plan of poverty reduction in Danang for the period of 2016-2020. Some important objectives related to low-income housing are:

- Mobilise all possible resources to rebuild and renovate downgraded houses of the poor in accordance with the three-strong principle: strong roof, strong walls, strong foundation (*Nguyên tắc 3 cứng: mái cứng, tường cứng, nền cứng*).
- Increase the rate of financial support: 35 million VND/house for new construction, 20 million VND/house for retrofitting.
- Maintain the counterpart fund from the city's budget to partner with the city's *Fund for the poor* (*Quỹ vì người nghèo*) at the contribution rates from the city's budget: 40% for new construction and 20% for retrofitting, focusing on poor households merely.

Policies related to building codes

¹⁶ Equal to 9,000 USD

¹⁷ - Urban poor households: Income per capita per month (ICM) ≤ 500,000 VND
- Rural poor households: ICM ≤ 400,000 VND

Policies related to building codes for climate resilient housing mainly involve regulations on applying and granting building permit in urban and rural areas. If the house is built on residential land and their set-back distances to roads and buildings nearby and the building form and size are consistent with the detailed planning project (at the scale 1/500), the house will be granted a building permit to construct on site.

In urban areas of Danang, building permit is granted by the district government while in rural areas of Danang, building permit is granted by the commune government. The requirement for applying building permit in urban areas is also more complicated than in rural areas in terms of the house design drawings. In addition, in urban areas, each district has a monitoring team under the administration of district people's committee who regularly come to the site to check whether the construction/renovation work follows the drawings approved along with the granted building permit. On the other side, there is no similar monitoring system in rural areas of Danang and, therefore, the house built on site sometimes does not follow the design approved in the granted building permit.

Policies related to disaster risk reduction

In Vietnam, policies related to disaster risk reduction are mainly in the Disaster Prevention Plan (DPP) at multiple levels. This plan is annually revised and updated, usually through the revision of the last-year plan. The main purposes of DPPs are the identification of available resources for coping with a forecasted event and recovering from a disaster. Solutions for evacuation, rescue and relief are identified in DPPs in which the Disaster Prevention Committee (DPC) at the correspondent level (e.g. commune or district level) take the leading role to coordinate and deploy.

Policies related to support to the poor

In Vietnam

In August of 2015, the national government has issued a policy, called Decision 33/2015/QĐ-TTg, to assist 310,000 poor households, ranked by the national poverty line for the period 2011-2015), in improving their housing conditions. The policy only focuses on the rural poor through providing a preferential loan package for poor people's housing retrofitting/reconstruction. The loan sizes are diverse according to different situations of poor households, but the maximum loan size is 25 million VND. The interest rate is 3% per year, lower than the current rate set by VBSP for the poor (at 6.5%).

Administratively, the commune/ward people's committee will take the role of monitoring construction/retrofitting work and reporting to VBSP the result for loan disbursement. Specifically, loan will be disbursed to households after the construction is completed for new house construction or 30% of the retrofitting work is completed for old house retrofitting. This policy is planned to be implemented within 5 years, from 2015-2020.

In Danang

Within the Danang city, the City's Poverty Reduction Plan for the period 2016-2020, issued in late 2015, has considered housing upgradation as one of the top priorities for poverty reduction and alleviation. From 2016-2020, 449 houses require a new construction and 2,198 houses demand a retrofitting. The beneficiary households for this program must be the poor classified by the city's poverty line for the 2016-2020 period¹⁸.

A newly built house will receive a grant/subsidy of 35 million VND and a retrofitted house will receive a grant/subsidy of 20 million VND (on average). Funding sources mainly come from the city budget, the *Fund for the poor*, and counterpart funds mobilized locally. Technically, housing construction and renovation is recommended, not required, to follow the housing models provided by DOC. However, according to the consultations with housing sector actors, most of local housing construction practices are done by people with limited replication or application of the designs provided by DOC due to different situations and abilities of poor families.

Another policy related to support to the poor in Danang is the Plan 5940/KH-UBND issued by Danang People's Committee in July 2013 to improve low-income housing in Danang in which building storm and flood resilience is one of the major goals. The outstanding point of this policy is the encouragement of different economic sectors to invest in social housing. The city Department of Finance (DOF) was responsible for establishing the city's housing development fund to serve this policy. DOF, in collaboration with VBSP, is in charge of simplifying the loan application procedure so that poor and low income people can access home loan more easily.

CCCO and government projects

CCCO project on building Danang City Resilience Strategy

Another project funded by RF is the City Resilience Strategy building under the 100 Resilient Cities Program, lasting from 2014 to 2016. One of the focus areas of this Danang Resilience Strategy is housing where different solutions for increasing the resilient capacity of low-income housing sector are provided.

Proposed solutions for housing include (i) providing preferential loan packages for different groups of households, (ii) providing technical support/design with a minimum cost, (iii) incorporate with insurance tool to return damage cost to affected households/involved financiers, and (iv) improve public awareness on climate resilient housing.

-
- | | |
|---|--|
| - ¹⁸ Urban poor households: | Income per capita per month (ICM) \leq 1,300,000 VND |
| - Urban near-poor households: | 1,300,000 VND \leq ICM \leq 1,690,000 VND |
| - Rural poor households: | ICM \geq 1,100,000 VND |
| - Rural near-poor households: | 1,100,000 VND \leq ICM \leq 1,430,000 VND |

The City Resilience Strategy identifies housing as one of the most vulnerable sectors to climate change and natural disasters, and call for a wide support from the international community to invest in building a resilient housing system for Danang City.

National housing program for the poor to strengthen their disaster resilience

This program has been launched in 2014 under the Decision No.48/QĐ-TTg promulgated by the Prime Minister on 28 August 2014. This program focuses on implementing a microcredit scheme to support the poor (ranked by the national poverty line) in having safer home against flood and storm hazards. 407 rural households in Danang, mainly located in Hoa Vang District, are provided preferential loan packages to retrofit or rebuild their houses according to some core technical principles:

- *The floor is higher than the highest flood level in previous times*
- *The usable floor area is equal to or larger than 10 m²*
- *The house structure is solid*
- *The roof must be resistant to storm wind*

Under this program, Vietnam Bank for Social Policies (VBSP) will help Danang build 23 new houses and retrofit 384 old houses in accordance with the above technical principles. Financially, each household is provided a subsidy/grant of 12 million VND in line with a loan of 15 million VND for the loan term of 10 years. This project is expected to be finished by end 2016.

Climate fund

This fund is directly managed by the Province/City People's Committee. In Danang, this fund has come into effect from 01/01/2016 with three main sources of financial contribution:

- One-day salary of governmental and non-government staff each year in accordance with their monthly basic salary rate
- 0.02% of the total asset of commercial enterprises each year, from 500,000 - 100,000,000 VND
- Charitable contributions of individuals/organisations within and outside the city

This fund is used for pre-disaster and post-disaster actions, as follows:

- Post-disaster:
 - *Relief supports after disasters (e.g. emergency aids for food, drinking water, medicines)*
 - *Supports for repairing houses, health facilities, schools, sanitation....in the disaster-affected areas through grants/subsidies or material supply (e.g. roof covers provision)*
- Pre-disaster:
 - *Evacuating disaster-exposed groups/people*

- *Healthcare*
- *Preparing food, drinking water for the intended evacuation places*

5. International experiences relevant for testing incentives for resilient housing

This chapter discusses issues and reviews literature relevant for developing our empirical strategy, as a basis for our work during Milestone 2. The chapter focuses on literature on assessing the impacts of microfinance, also combined with other “incentives”, such as education combined with microfinance. Hence, it supplements the more theoretical discussions in chapter 3. The literature mostly deals with programs targeted to small entrepreneurs in developing countries (traditional microfinance), but the empirical strategies are still relevant for our project.

5.1 Impacts of microfinance

The main problem in assessing impacts of microfinance is related to self-selection. Households that have access to microfinance are likely to differ from the households that do not have access, not only in terms of observable characteristics such as assets and income before entering the microfinance program, but also in terms of unobservable characteristics. These differences are due to both demand side and supply side factors (Banerjee et al., 2015). On the demand side, households that are more likely to succeed may be more likely to apply for microfinance programs, creating an “upward” selection bias (exaggerating impact). On the other hand, households may borrow because they expect some kind of reduction in income in the future or have recently experienced a negative shock, thus creating a downward bias (Banerjee et al. 2015). On the supply side, the microfinance institutions (MFIs) may select eligible households based on characteristics that are unobservable to the researcher, and that influence the outcomes of the households. These can be characteristics that make eligible households more likely to succeed, causing an upward bias on the impact estimate, or characteristics that make households less likely to succeed (targeting poor and vulnerable due to social concerns), leading to a downward bias (Banerjee et al., 2015).

Unobservable characteristics of households that influence both the probability of access to microfinance and the outcomes of interest, will bias the impact estimates unless the impact assessment method is able to control for these differences. It is therefore necessary to have a valid counterfactual baseline to the households with access to finance. In order to understand the impact of access to microfinance, we need to know what the outcomes would have been without access to microfinance. One approach is to compare the outcomes of households with access to microfinance, to the outcomes of a control group without access to microfinance. In order for the control group to represent a valid counterfactual, we must assume that the two groups are equal *except for the difference in access to microfinance*. The literature on impacts of microfinance programs includes a variety of approaches to controlling for selection bias.

5.2 Literature on assessing impacts of microfinance, with focus on relevant empirical approaches and applications in Vietnam

Banerjee, Karland and Zinman (2015): Review of six randomized impact assessment studies of microcredit, with start dates from 2003 – 2010, and end dates from 2006 – 2012. Five of the six programs are targeted to microentrepreneurs, and the programs are placed in Bosnia and Herzegovina, Ethiopia, India, Mexico, Mongolia and Morocco. The interest rates and repayment rates, as well as requirements for collateral vary. Four of the programs evaluated are group-lending programs, one is individual lending, and one includes both individual and group lending.

In terms of impact assessment methods, all six rely on randomized allocation of loans at some level. There are two types of randomization in the studies: Five of the studies have randomized the allocation of programs to communities, while one has individual-level randomization. The first approach requires a large number of eligible communities, as well as some kind of mechanism to ensure that households outside the treated communities do not get access to the loans. It has the advantage of capturing any general equilibrium or spill-over effects at the community level. A disadvantage is the loss of statistical power, since in practice there may not be a large difference in enrollment between treatment and control communities (low enrollment). The advantage of individual level randomization is that it may require a smaller sample if one can create a sample of people who are interested in enrolling, and then randomizing access (thus ensuring high take-up in the treatment group). The two approaches will measure two different treatment effects: The first is the impact of expansion to new markets, while the second is the impact within already existing markets. All six studies focus on the *average intent-to-treat effect*, that is, the average impact on the households or communities that were targeted.

The main outcomes of interest include entrepreneurial activities, household income, consumption and social indicators. Results are mixed on entrepreneurial activities at the extensive margin (whether or not they become an entrepreneur), but more promising at the intensive margin (measures of profits, investments and business size for existing entrepreneurs). None of the studies find significant impacts on income, but two studies find increases in business incomes offsetting reductions in wage incomes. There is no evidence of increase in consumption, which is a widely used proxy for living standards. Some studies even find a decrease in consumption and increased food insecurity, which may be due to households still paying off the loan at the time of the final survey. A robust finding of the studies is a decrease in discretionary spending (on recreation, celebrations, etc.). Across all six studies, there do not seem to be any positive effects on health or education spending, nor on social indicators such as children's schooling or female decision power, although there are some indications of a positive impact on female empowerment and well-being in the program in Mexico.

The authors conclude that the findings of these six impact assessments are in line with previous surveys of impacts of microfinance programs: There do not seem to be transformative effects on living standards or clear evidence of improvements in social indicators. This is despite the fact that microfinance seems to have a positive impact on entrepreneurial activity and profits. However, there are some indications that microcredit contributes to increased freedom of occupational choice and consumption choice, and improved risk management. Also, the studies do not detect harmful effects, on average.

Suggestions for further research: Improving statistical power, exploring impacts at different horizons (from very short term to longer term, especially in terms of investments in health and education), identification and interpretation of heterogeneous treatment effects, as well as spill-over and general equilibrium effects. The authors

conclude that there are promising effects of micro savings, and interesting research possibilities on micro insurance (see paper for references).

Duong and Nghiem (2014): Use pseudo panel (cross-section information treated as if it was a panel based on observable characteristics such as residence etc) based on the Vietnam Living Standards Survey (1992, 1998, 2002, 2004, 2006, 2008 and 2010, in total 15 000 households with credit information, 16 % with micro finance access) to assess the impact of access to credit and the size of loan on consumption and income, controlling for unobserved effects at the provincial level. Find large impacts of both access and size of loan on consumption and income, but do not control for household level unobservables that likely affect both income, consumption, likelihood of access to credit and size of loan.

Doan, Gibson and Holmes (2014): Use propensity score matching (PSM) methods to assess the impact of microcredit on education and health expenditures of households in peri-urban areas outside Ho Chi Minh City. They compare outcomes for statistically identical households, while controlling for pre-treatment income and assets, arguing that the matched control group provides a valid counterfactual to the group of treated households. This is the essence of PSM. They find a significant and positive impact of access to formal credit on spending, but insignificant impact of informal credit. The empirical approach of the study is designed to minimize the difference between the treatment and control groups to minimize the bias resulting from comparing groups that are too different, using PSM.

Bulte, Lensink, van Vezén and Vu (2015): The authors use a randomized control trial (RCT) to investigate the impact of business training of female microcredit recipients in northern Vietnam. The motivation is previous findings in the literature on microfinance showing that not only financial capital, but also human capital is a barrier to business development in developing countries. This has led to the *finance-plus strategy*, which combines microcredit with for instance financial literacy and business development training. The literature so far is mixed on the impacts of training, and most studies conclude that especially women do not gain much from business training in combination with micro credit. The authors address potential demand side and supply side selection biases by randomizing credit centers of the *Tao Yeu May (TYM) Fund* in northern Vietnam to Gender and Business training. Randomization was stratified at the TYM branch level, with similar proportions of credit centers in each branch assigned to two treatment groups and one control group. In one treatment group the women were asked to bring their husbands to the training, and in the other, only women were invited to the training. The authors calculate the intention to treat effect (ITT) and the local average treatment effect (LATE), which in this case corresponds to the treatment effect on the treated (TOT). They find large and robust effects of the training on knowledge and business practices of female clients, and weaker effects on profits, profit margins and sales in the medium term. This implies that it takes some time for the effects of the training to have an impact on business outcomes, and that impacts become stronger over time, rather than dissipating. The authors do not find evidence that the participation of husbands affected knowledge or practices, but weak evidence of a positive effect on profits.

Part II: Workshop reporting and revised work plan

6. The inception week, including kick-off workshop

The inception week in May 2016 consisted of

- Internal preparation meetings
- Stakeholder dialogue with key actors
- Field trip to climate resilient homes financed by WU
- Kick-off workshop

Results of the stakeholder dialogue are reported in section 2.2. The program of the kick-off workshop is attached to this report. The kick-off workshop was a success with more than 40 participants from the relevant stakeholders in Danang. Participants related their expectations from the project. Government representatives warmly welcomed the project and gave valuable suggestions.

Table 6.1 **Photos from the inception week**

<i>At Women's Union</i>	<i>Kick-off workshop</i>
 	 
<i>Visiting climate resilient home</i>	<i>Kick-off ceremony</i>

7. Revised work plan

During the inception phase, we realized that our original plan for construction in two milestones from November 2016 through April 2017 for milestone 3, and from April through September 2017 in milestone 4, is impractical. As discussed above, house construction normally takes place between May and August, since this is the driest season. It is also impractical to plan for construction over Vietnamese New-Year. Feng-Shui perception issues will also influence the optimal time to start construction.

To ensure that we are able to meet our goal of constructing/retrofitting 100 houses, we propose to merge Milestones 3 and 4 into one milestone, lasting from mid December 2016 through September 2017. We would then roll out incentive packages targeting at least 70 households first, with the aim of construction from March through August 2017. This also gives us more time to do a baseline survey before rolling out the incentive packages.¹⁹ Since the new, merged milestone period is quite long, we suggest two workshops/meetings, first to discuss progress and preliminary experiences from implementing the incentives (October/November 2016), and then to plan implementation for the next milestone (medio February/March 2017). The final 30 houses and the data collection after all incentives have been introduced will then take place from mid-September 2017 to mid-April 2018.

The revised work plan is attached in Annex 1. Revised budget (with the merged Milestones 3 and 4) and log-frame and time schedule are attached with the progress report and not repeated here. See there also proposed changes to the budget resulting from the merging of the milestones.

¹⁹ Whether or not we will do a baseline survey will be decided after completing our plan for evaluation in the next milestone. It will depend on the suitable empirical strategy to investigate and document impacts of the (later to be) designed incentives.

ANNEX 1: Revised work plan (working document, as of 31. August 2016)

Milestone Inception (completed)	1: Tasks	Person responsible	Other contributors	Due date, 2016				
				Apr	May	Jun	Jul	Aug
Inception workshop, detailed revised work plan and inception report (Vista, co-lead HCE)	Preparing for inception workshop	All			9			
	Inception workshop with kick-off meeting	All			9-13			
	Documenting inception workshop and updating project home page (each partner)	Sofie, Phong			20			
	Revision of work plan	Sofie			20			
	Finalize contractual arrangements between partners	Sofie, Haakon				10		
	Clarify administrative procedures with NDF	Sofie, Henrik				3		
	Outline inception report	Haakon			27			
	Overview of existing data sources and relevant statistics	Tuan Anh	Phong, WU			3		
	- Eligibility criteria for previous selection of households	Phong						
	Tentative incentive packages for discussion	Henrik, Sofie				6		
	Develop proposal on empirical strategy for testing of incentives	Henrik, Sofie				6		

Milestone Inception (completed)	1: Tasks	Person responsible	Other contributors	Due date, 2016				
				Apr	May	Jun	Jul	Aug
	<ul style="list-style-type: none"> - Quantitative approach with sampling etc. - Measuring technology take-up - Measuring household level resilience - Qualitative approach with focus groups, case studies etc. 							
	Skype meeting on tentative incentive packages and empirical strategy (8 pm Vietnam time)	All				8		
	Description of expected barriers to investment, based on previous research and experiences	Tuan					X	
	Planning focus groups for households to identify relevant barriers to investment in climate resilient housing	Tuan					X	
	Conducting focus groups	Tuan					X	
	Report on consultation with housing sector actors, including banking and insurance, local government, civil society, construction and architect actors	Tuan Anh			20			
	Consultation with Swiss Re on potential testing of parametric typhoon insurance, in collaboration with CCCO and WU (13 th 15 th July Singapore meeting, Phong)	Phong	CCCO					

Implementing incentives for climate resilient housing among the urban poor in Vietnam:
Inception report

Milestone Inception (completed)	1: Tasks	Person responsible	Other contributors	Due date, 2016				
				Apr	May	Jun	Jul	Aug
	Draft inception report chapters						3	
	Inputs to Financial Report from each partner due - Inputs to Table 1 of Financial Report (costs) - Inputs to Table 2 of Financial Report (sources of funding, co-financing) - Detailed time sheets and description of travel costs, and other costs (according to template in Annex 1 to Financial Report) Copy of any invoices exceeding 2000 Euro	All					31	
	Internal draft inception report due	Haakon					31	
	Progress and Financial Report	Sofie, Haakon						7
	Comments inception report due	All						7
	Request for disbursement	Haakon						
	Due: Inception report, including revised work plan and documentation of inception workshop Progress and Financial Report Request for disbursement	Haakon, Sofie						15

Milestone 2: Incentive mechanisms design	Tasks	Person responsible	Other contributors	Due date, 2016				
				Aug	Sep	Oct	Nov	Dec
2) Incentive mechanisms designed (Vista, co-lead HCE)	Further analysis of results from focus groups, with focus on current hurdles for uptake of climate resilient housing	Tuan			15			
	Refinement of incentive packages	Henrik	Phong, Tuan, WU		26			
	Skype meeting on refined incentive packages and plan for next workshop in Vn (8 pm Vietnam time)				x	x		
	Plan for implementation - draft for workshop discussion		Phong, Tuan, WU			x		
	Further refinement of empirical strategy for testing incentives (plan for evaluation in field) – draft for workshop discussion	Henrik, Sofie				x		
	Workshop in Vietnam <ul style="list-style-type: none"> Potentially in connection to ISETs ADB meeting, and potentially with due diligence meeting from NCF + visit to Norwegian Embassy in Hanoi 					x	x	

Milestone 2: Incentive mechanisms design	Tasks	Person responsible	Other contributors	Due date, 2016				
				Aug	Sep	Oct	Nov	Dec
	• Tentative dates: October, except 6-8th							
	Draft incentive mechanisms report chapters due					x	x	
	Inputs to Financial Report from each partner due - Inputs to Table 1 of Financial Report (costs) - Inputs to Table 2 of Financial Report (sources of funding, co-financing) - Detailed time sheets and description of travel costs, and other costs (according to template in Annex 1 to Financial Report) - Copy of any invoices exceeding 2000 Euro					31		
	Internal draft incentive mechanisms report due					31		
	Comments incentive mechanisms report due						20	
	Progress and Financial Report							12
	Disbursement request							15
	Due: Report on incentive mechanisms, including plan for evaluation in field and plan for use of incentives first 30 houses Progress report and financial report							12

Milestone 2: Incentive mechanisms design	Tasks	Person responsible	Other contributors	Due date, 2016				
				Aug	Sep	Oct	Nov	Dec
	Request for disbursement							

Milestone 3: First 70 houses	Tasks	Person responsible	Other contributors	Due date, 2017										
				Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3) 70 houses built or retrofitted, monitoring report. Plan for use of incentives final 30 houses (WU, co-lead ISET)	Practical preparation of incentive packages			x	x	x	x							
	<i>Baseline survey (tentative)</i>					x								
	<i>Randomization of households into treatment and control groups (tentative)</i>						x							
	Distribution of incentives						x	x						
	Monitoring implementation						x	x	x	x	x			
	Workshop in Vietnam to assess progress, implementation experiences and data collection							x						

Implementing incentives for climate resilient housing among the urban poor in Vietnam:
Inception report

Milestone 3: First 70 houses	Tasks	Person responsible	Other contributors	Due date, 2017											
				Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
	Tentative dates:														
	<i>Post-treatment survey (tentative)</i>										x	x			
	Workshop in Vietnam to discuss experiences and plan implementation for final 30 houses. Tentative dates:												x		
	Draft monitoring report, including plan for final 30 houses due												x		
	Inputs to Financial Report from each partner due - Inputs to Table 1 of Financial Report (costs) - Inputs to Table 2 of Financial Report (sources of funding, co-financing) - Detailed time sheets and description of travel													1	

Milestone 3: First 70 houses	Tasks	Person responsible	Other contributors	Due date, 2017										
				Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	costs, and other costs (according to template in Annex 1 to Financial Report) - Copy of any invoices exceeding 2000 Euro													
	Internal draft monitoring report due, including plan for final 30 houses												x	
	Comments monitoring report													1
	Progress and Financial Report													15
	Disbursement request													15
	Due: Monitoring report and plan for use of incentives final 30 houses Progress report and financial report Request for disbursement													15

Milestones 4 and 5: Last 30 houses and workshop	Tasks	Person responsible	Other contributors	Due date, 2018							
				Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
5) Final 30 houses built or retrofitted, monitoring report. (WU, co-lead ISET)	Practical preparation of incentive packages			x							
	Distribution of incentives				x						
	Monitoring and data collection				x	x	x	x	x	x	
6) Workshop to discuss preliminary results (HCE, co-lead Vista and ISET)	<ul style="list-style-type: none"> Implementation review workshop Workshop to discuss preliminary results Tentative dates:										
	Draft monitoring report due									15	
	Inputs to Financial Report from each partner due <ul style="list-style-type: none"> Inputs to Table 1 of Financial Report (costs) Inputs to Table 2 of Financial Report (sources of funding, co-financing) Detailed time sheets and description of travel costs, and other costs (according to template) 									31	

Milestones 4 and 5: Last 30 houses and workshop	Tasks	Person responsible	Other contributors	Due date, 2018							
				Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
	in Annex 1 to Financial Report) - Copy of any invoices exceeding 2000 Euro										
	Internal draft monitoring report due									31	
	Comments monitoring report										6
	Progress and Financial Report										15
	Disbursement request										15
	Due: Monitoring report and plan for use of incentives next 40 houses Progress report and financial report Request for disbursement										15

Milestones 6 and 7: Refining analysis and producing report	Tasks	Person responsible	Other contributors	Due date, 2018					
				Apr	May	Jun	Jul	Aug	Sep
7) Refine analysis and results, produce report (Vista, co-lead ISET) 8) Project reporting	Data analysis and reporting on impacts of incentive packages								
	Prepare communications materials for public and private actors								
	Preparing national presentations								
	Dissemination workshop Tentative dates:					X			
	Preparing scientific publications								
	Preparing final project report								
	Draft final project report								
	Inputs to Financial Report from each partner due <ul style="list-style-type: none"> - Inputs to Table 1 of Financial Report (costs) - Inputs to Table 2 of Financial Report (sources of funding, co-financing) - Detailed time sheets and description of travel costs, and other costs (according to template in Annex 1 to Financial Report) - Copy of any invoices exceeding 2000 Euro 								
	Internal draft monitoring report due								

Milestones 6 and 7: Refining analysis and producing report	Tasks	Person responsible	Other contributors	Due date, 2018					
				Apr	May	Jun	Jul	Aug	Sep
	Comments monitoring report								
	Progress and Financial Report								
	Disbursement request								
	Due: Monitoring report and plan for use of incentives next 40 houses Progress report and financial report Request for disbursement								15

ANNEX 2: Schedule for inception workshop and kick-off meeting in Danang

Date	Activity	Participant
09 May 2016	<i>Morning (9h-11h)</i> ✓ Welcome & Warm-up meeting ✓ Internal meeting between Vista and local partners on the research approach and methods (cont')	<ul style="list-style-type: none"> ○ Vista ○ ISET ○ Hue College of Economics (HCE)
	<i>Afternoon (14h-17h)</i> ✓ Internal meeting between Vista and local partners on the research approach and methods (cont')	<ul style="list-style-type: none"> ○ Vista ○ ISET ○ Hue College of Economics (HCE)
10 May	<i>Morning (8h-11h)</i> ✓ Internal meetings between Vista and local partners on sub-contracts' agreements and regulations	<ul style="list-style-type: none"> ○ Vista ○ ISET ○ HCE ○ WU
	<i>Afternoon (14h-17h)</i> ✓ Internal meetings between Vista and local partners on ways of project implementation, monitoring and evaluation	<ul style="list-style-type: none"> ○ Vista ○ ISET ○ HCE ○ WU
11 May	<i>Morning (8h-11h)</i> ✓ Visit Man Thai and Hoa Nhon wards <ul style="list-style-type: none"> ○ Short discussion with Ward leaders ○ Visit 2 households-beneficiaries of ACCCRN housing project 	<ul style="list-style-type: none"> ○ Vista ○ ISET ○ HCE ○ WU
	<i>Afternoon (14h-17h)</i> ✓ Work with CCCO, DOFA, DOC and city leaders (<i>if possible</i>)	<ul style="list-style-type: none"> ○ Vista ○ ISET ○ HCE ○ WU ○ CCCO ○ DOFA ○ City leaders
12 May	<i>Morning (8h-11h)</i> ✓ Work with local partners and pertinent stakeholders to prepare for	<ul style="list-style-type: none"> ○ Vista ○ ISET

	the kick-off meeting	<ul style="list-style-type: none"> ○ HCE ○ WU ○ CCCO
	<i>Afternoon (14-17h)</i> ✓ Kick-off Meeting (intended 40 participants) please see detailed program on next pages	<ul style="list-style-type: none"> ○ CCCO(<i>co-organiser</i>) ○ WU (<i>co-organiser</i>) ○ Vista ○ ISET ○ HCE <u>Invited:</u> <ul style="list-style-type: none"> ○ Steering Committee of Climate change and Sea Level rise Response ○ Advisory Board of 100RC ○ VBSP ○ Fatherland Front ○ Ward Authority ○ 8 beneficiary wards representatives
13 May	<i>Morning</i>	Off to visit Danang personally
	<i>Afternoon</i>	VISTA back to Europe

KICK-OFF MEETING

Location: The City Administration Hall

Time: 14-17h, 12 May

Participants about 45 people including VISTA, WU, HCE & ISET:

- City leaders (if they are available): 1 person
- 100 Resilient Cities Program local experts:
 - Focus Area (FA) 1 – Housing and Community Safety: 1
 - FA 2 (Livelihood and Employment): 1
 - FA 3 (Green Infrastructure): 1
 - FA 4 (Communication, Information): 2
 - Strategy Group: 5
- Danang Department of Construction: 2
- Vietnam Consultant Architecture Company: 1
- Duy Tan Architecture University: 1
- Danang Polytechnic University: 1

- Representative of wards: 4
- Vietnam Bank for Social Policy: 2
- Swiss Re insurance: 1
- Danang Fatherland Front 1
- Fund for the Poor: 1
- ADB project: 2
- Steering Committee: 10

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