

Implementing incentives for climate resilient housing among the urban poor in Vietnam Monitoring report 1

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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 a monitoring report covering the first round of disbursement of financial incentives for climate resilient housing in Da Nang City. We describe the implementation of the project, from selection of households for each incentive package, to the current status of house construction and retrofitting, the disbursement of financial incentives, and preliminary results based on the take-up of incentives and the characteristics of households based on the data from a baseline survey carried out in December 2016 to February 2017. Finally, we present the plan for disbursement of the second and final round of disbursement of incentives.

Project Manager

Sofie Waage Skjeflo

Vista Analyse AS

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1. Introduction

This report gives a detailed presentation of the activities that have been carried out during the third reporting period of the project “Implementing incentives for climate resilient housing among the urban poor in Vietnam”. In the first reporting period of the project, we carried out detailed research on the housing market and poor households in Da Nang, with the purpose of identifying the main barriers that prevent households from investing in climate resilient housing. The results are shown in the Inception report (Vista Analyse, 2016 a). In the second milestone, three different incentive mechanisms, consisting of combinations of information, technical assistance and financial incentives, were designed. In this part of the project, we also designed a plan for rigorously assessing the impact of two of the incentive packages, by allocating incentives to households through a randomized controlled trial. A large baseline survey of 306 near-poor households in Da Nang was designed and carried out. The incentive mechanisms, the plan for monitoring and evaluation, and the questionnaire for the survey are shown in the Incentive mechanisms report (Vista Analyse, 2016 b).

In this reporting period, the plans that are described in the two previous reports have been implemented. In the period from January 2017 to September 2017, selected households have been offered free professional technical assistance to retrofit or rebuild their homes to become storm resistant. They have been offered either a microloan through the Women’s Union of Da Nang’s revolving fund, a grant, or a combination of the two, to co-finance their building costs. The implementation of the project has been led by the Women’s Union of Da Nang at the city level, and supported by Women’s Union representatives at the district- and ward level.¹ In addition to the communication between the Women’s Union representatives and each of the households that take part in the project, a number of information events have been organized by the Women’s Union to educate local builders, to inform district- and ward leaders, and to ensure local support.

This report starts by describing the process through which households were selected and offered each of the incentive packages. Two of the incentive packages are targeted to near-poor households that have the income generating capacity to operate a small loan. The third incentive package is targeted to poor households that cannot operate a loan, and rely on a grant as well as co-funding from other sources, to finance their construction. Only the near-poor households were surveyed in the baseline survey, and we therefore currently have more detailed information about these households. The third chapter of this report describes the characteristics of the near-poor households that were nominated as eligible for the project, based on the results from the baseline survey, and the selection of households into “treatment” and “control” groups in the randomized controlled trial. Next, we describe how the incentive

¹ Da Nang City consists of 8 districts and 56 wards and communes. Our project has relied on local Women’s Union representatives in 7 districts and 49 wards.

packages were communicated and offered to the households, the decisions of households to participate or not, and how the technical design team worked with the households that decided to retrofit or reconstruct their house. We then give an overview of the current status of construction, and show some preliminary results where we compare the characteristics of the households that accept and reject the incentive packages targeted at near-poor households. The implementation will continue in the next milestone, and the final chapter of the report describes the plans for implementation from now until April 2018 (Milestone 4).

2. Selection of eligible households

Three incentive packages were designed in the previous reporting period of this project and presented in the incentive mechanisms report. As mentioned, two of the packages are targeted to near-poor households, while the third package is targeted to poor households without the income generating capacity to repay a loan. Table 2.1 summarizes the contents of each incentive package.

Table 2.1 Contents of incentive packages (amounts in VND)

	Package 1	Package 2	Package 3
Loan size	30 000 000	20 000 000	0
Monthly interest	0.0075	0.0075	
Repayment period (months)	40	40	
Monthly loan payments by hhs	870 905	580 603	
Technical assistance	1 000 000	1 000 000	1 000 000
Grant		10 000 000	25 000 000
Co-financing	Cash and in-kind contributions by households	Cash and in-kind contributions by households	Matching funds from other donors, cash and in-kind contributions by households if possible

All three packages supply technical assistance to the households, including technical designs of the new house or retrofit, and technical assistance by local architects and local builders trained through the program to ensure that the technical design is correctly implemented. Package 1 offers a loan of maximum 30 million VND (about 1100 Euros), at a monthly interest of 0.75 % (about 9 % per year) and a repayment period of 40 months. Package 2 offers a maximum of 20 million VND loan, but in addition, a 10 million VND grant. Package 3 does not contain any loan, since it is targeted at households that do not have the capacity to repay a loan, but rather offers a larger grant of on average 25 million VND. This package relies on contributions from other programs targeted at the poor to co-finance the construction costs, and all three packages rely heavily on cash and in-kind contributions by the households themselves. The total costs of house retrofitting or reconstruction are recorded as part of the monitoring and evaluation of the program, as are the sources of co-financing. As shown in chapter 4, the average cost of house retrofits is 50-59 million VND and the average cost of newly constructed houses is 68-80 million VND (the figures differ by package). The support from our program through loans and grants is thus between 35 % and 60 % of the total construction cost, and the grant component is between zero and 20 % for the near-poor households.

In the plan for implementation described in the Incentive mechanisms report, our intention was to disburse incentives and start construction for near-poor households only in this reporting period. Since the take-up for these packages was unknown, the number of poor households to be targeted in the next period of implementation (September 2017 to April 2018) would be determined by the remaining budget after disbursing incentives to households in package 1 and package 2. However, as pointed out by the Women's Union, to ensure efficient and timely implementation of the project it was necessary to start administering technical designs, starting construction and disbursing grants for households in package 3 as early as possible. The number of households that can be reached in the next period of implementation is limited by the fact that September to November is typhoon season in Da Nang, and Vietnamese new year's celebrations (Tet holiday) in February also limit the time available for construction.

Since the impacts of incentive packages 1 and 2 are to be assessed through a randomized controlled trial, the method for nominating households for these two packages was different from the method for nominating poor households for package 3. In both cases, however, the Women's Union used their network in the city to find households that were both on the city's list of near-poor or poor households (depending on whether they were nominating to package 1, 2 or 3), and had a need for improving the storm resilience of their homes. In order to ensure that the same targeting criteria were used for nominating eligible households for package 1 and 2, instructions for nomination were distributed to the local Women's Union representatives. This is important to make sure that households that are part of the randomized controlled trial are comparable, and to know as much as possible about what types of households the findings of the evaluation of impacts can be extended to. The WU were asked to compile a list of six near-poor households per ward that were eligible for participation in the program. The number six was chosen due to budgetary constraints. The final number of households per ward varies however, but totals 306 households. According to the targeting criteria, the households have:

- Housing conditions vulnerable to climate risk,
- Limited access to financial resources for strengthening climate resilience housing,
- A stable job, but low income,
- Some savings and the ability to mobilize labor force for their housing improvement,
- Capacity for repayment,
- Documents to prove land ownership.

The near-poor households were approached, and asked whether they had a need for house retrofitting or reconstruction to ensure storm resilience, and with the wish to carry out such retrofitting or reconstruction starting from March 2017. Through this approach, 306 households were nominated from 49 wards. The characteristics of the households and the selection of households into package 1, package 2 and the control group, are further described in the next chapter.

The households eligible for package 3 were also identified through the Women's Union network. Here, the goal was to identify poor households with the need to improve the storm resilience of their homes, and who had access to matching funds from other programs targeted at poor households. The potentially eligible households were visited by the Women's Union, who surveyed the conditions of their homes, their ownership

status and economic situation, and discussed the wishes of the households. A total of 41 households were nominated for package 3 during the first period of implementation.

3. Baseline survey and selection into treatment and control groups

The 306 near-poor households that were eligible for packages 1 and 2 were surveyed between late December 2016 and early February 2017. The survey instrument included modules on household composition as well as different conditions and issues that may affect or be affected by the housing investment. This includes modules on income, consumption, assets as well as past storm exposure and housing repairs, and a detailed recording of the present storm resilience of the house. The survey questionnaire is attached to the Inception report. Next, we selected which households would be offered package 1 and package 2 (the two “treatment groups”), and which households would serve as a control group. We used a random number generator to randomly select wards into three approximately equally sized groups. The randomization was stratified at the District level in order to ensure that each District would have households in each of the three groups, in line with the wishes of the Women’s Union. The stratification would also make the three groups of wards more comparable, since they would be more evenly distributed. Another option would have been to randomly select households rather than of wards, for each of the three groups. We chose to randomize at the ward level in order to avoid spill-over effects of information, but also to avoid conflicts between households. Since the microloan from the Women’s Union revolving fund includes participation in a savings group, it is also more practical to implement the project at the ward level rather than to individual households. 16 wards with a total of 106 households were selected for package 1, 17 wards with a total of 108 households were selected for package 2, and 16 wards with a total of 92 households were selected for the control group. The geographic distribution of the wards in the three groups is shown in Figure 3.1.

Figure 3.1 Map of Da Nang City with wards assigned to package 1, package 2 and control

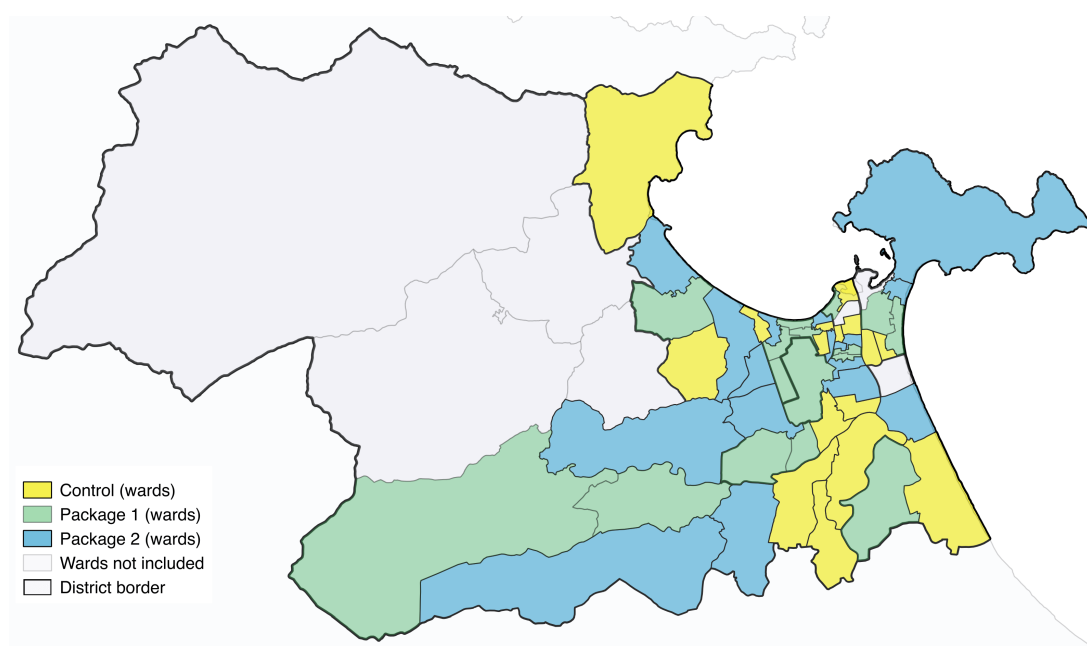


Table 3.1 reports data from the baseline survey for the households in the control group and the package 1 and package 2 groups.

Table 3.1 Baseline means: household composition, income and asset ownership

	Control	Treatment 1	Treatment 2
Female household head	0.554 (0.052)	0.538 (0.049)	0.481 (0.048)
Age of household head	56.185 (1.440)	53.575 (1.247)	54.62 (1.313)
Years of schooling	6.348 (0.457)	8.358 (0.371)	6.778 (0.387)
Household size	4.793 (0.213)	4.028 (0.137)	4.444 (0.169)
Monthly income (1000 VND) per person	1339.926 (64.339)	1658.638 (97.651)	1611.22 (97.716)
Monthly expenditures (1000 VND) per person	898.882 (65.024)	630.789 (53.710)	974.61 (67.581)
Owns motorbike	0.837 (0.039)	0.934 (0.024)	0.861 (0.033)
Owns refrigerator	0.554 (0.052)	0.642 (0.047)	0.611 (0.047)
Owns washing machine	0.207 (0.042)	0.358 (0.047)	0.296 (0.044)
Owns air conditioner	0.000 (0.000)	0.075 (0.026)	0.009 (0.009)
Owns telephone	0.022 (0.015)	0.019 (0.013)	0.009 (0.009)
Owns TV	0.522 (0.052)	0.679 (0.046)	0.620 (0.047)
Owns computer	0.022 (0.015)	0.075 (0.026)	0.009 (0.009)
Owns gas stove	0.076 (0.028)	0.179 (0.037)	0.259 (0.042)
Household member has a loan	0.620 (0.051)	0.462 (0.049)	0.463 (0.048)
N	92	106	108

Note: Standard deviations are given in parentheses.

Around half of the households are female-headed, in line with the WU's targeting of women. The household heads are on average 54 years old, and have on average 6.5-8.5 years of education. The households consist on average of four to five people.

Average monthly income per person is around 1340-1660 thousand VND per month, whereas average monthly expenditures per person vary between 630-970 thousand VND, depending on the treatment arm. Since it is very difficult to collect good data on

household expenditures, and our data from the baseline survey shows large variability in expenditures, we believe that the monthly income data better reflects the economic conditions of the households.

A larger share of households than expected have a loan from beforehand. Around 46 percent of the households in each of the three groups have a loan from beforehand, whereas the same applies for just over 60 percent of the households in the control group. These loans are primarily for business activities, house construction/retrofitting/repairs and education expenses.

A large share of the households owns motorbikes, an important asset in the Vietnamese context, whereas between 52-68 percent of the households own a TV. Fewer households own a washing machine (21-36 percent) or a gas stove (8-26 percent), and even fewer own a computer (1-8 percent) or air conditioner (0-8 percent).

We are particularly interested in the households' housing conditions. In Table 3.2 we report the means on housing variables for the three groups. The majority of the households own the house they live in (94-97 percent), and have lived there the last 20-23 years. The walls are predominantly made out of bricks (63-74 percent) or cement blocks (19-28 percent), whereas the roof is typically constructed using metal sheets (78-90 percent).

Packages 1 and 2 include a technical design that ensures that one or more resilience components are incorporated into the new/retrofitted houses. These resilience components are already to a large extent known to the households. It is therefore relevant to look at whether there are any systematic differences in whether these components are in place across the three groups *before* the packages were offered. There are eight resilience components, and few households have these in place. For instance, few households have a solid room in their house (8-13 percent), and even fewer are built with ring beam at the foundation level (6-11 percent) or roof level (5-8 percent).

We also asked the households a number of questions regarding their *perceived* resilience. We find that most households either strongly disagree or disagree (89-94 percent) with the statement that "If a storm such as Nari in 2013 occurred in my area tomorrow, my house would be safe".

The summary statistics from the baseline survey show that we have succeeded in targeting a large share of female-headed households. Around half of the households that have accepted the package are female headed. This exceeds our project goal of at least 25 percent female headed households. We also see that these are not the poorest households – a large share own motorbikes, and average income is above the poverty line, however these are still relatively poor households, earning their living from self-employment, and are in need of housing improvement.

Table 3.2 Baseline means: housing conditions

	Control	Treatment 1	Treatment 2
Owns house	0.945 (0.024)	0.972 (0.016)	0.954 (0.020)
Years lived in house	23.451 (2.058)	19.858 (1.146)	22.046 (1.336)
Walls: bricks	0.637 (0.051)	0.676 (0.046)	0.741 (0.042)
Walls: cement blocks	0.198 (0.042)	0.276 (0.044)	0.185 (0.038)
Roof: metal sheets	0.857 (0.037)	0.895 (0.030)	0.778 (0.040)
Resilience components			
House has a solid room	0.100 (0.032)	0.133 (0.033)	0.083 (0.027)
Continuous/ring reinforced concrete beam at the foundation level	0.089 (0.030)	0.114 (0.031)	0.065 (0.024)
Continuous/ring reinforced concrete beam at the roof level	0.078 (0.028)	0.048 (0.021)	0.056 (0.022)
Reinforced concrete (RC) pillars inside walls	0.089 (0.030)	0.114 (0.031)	0.130 (0.032)
Reinforced concrete roof	0.044 (0.022)	0.000 (0.000)	0.046 (0.020)
Roof bracings	0.000 (0.000)	0.105 (0.096)	0.000 (0.000)
Clay tiles roof	0.066 (0.026)	0.067 (0.024)	0.120 (0.031)
Corrugated steel roof	0.944 (0.024)	0.933 (0.024)	0.944 (0.022)
Disagree that house would be safe if storm such as Nari (2013) occurred tomorrow	0.890 (0.033)	0.943 (0.023)	0.907 (0.028)
N	92	106	108

Note: Standard deviations are given in parentheses.

4. Implementing the incentive packages

This chapter describes how the technical designs were developed and how technical assistance was provided to households that decided to reconstruct or retrofit their homes. We then report on the construction activities and the disbursement of loans and grants that have taken place over the reporting period.

Following the randomization of the wards into the three groups, the local Women's Union units at the ward/commune level informed the near-poor households which category their households belonged to (package 1, package 2 or control). The households were then contacted directly by the local Women's Union unit. The near-poor and poor households that were offered either package 1, package 2 or package 3 were provided information about the conditions of the loan and or grant both verbally and by means of an information brochure. See Annex 1 for an example of an information brochure, in this case the brochure to the households in package 1. They were given a consideration period of roughly two weeks to decide whether to accept or reject the offer.

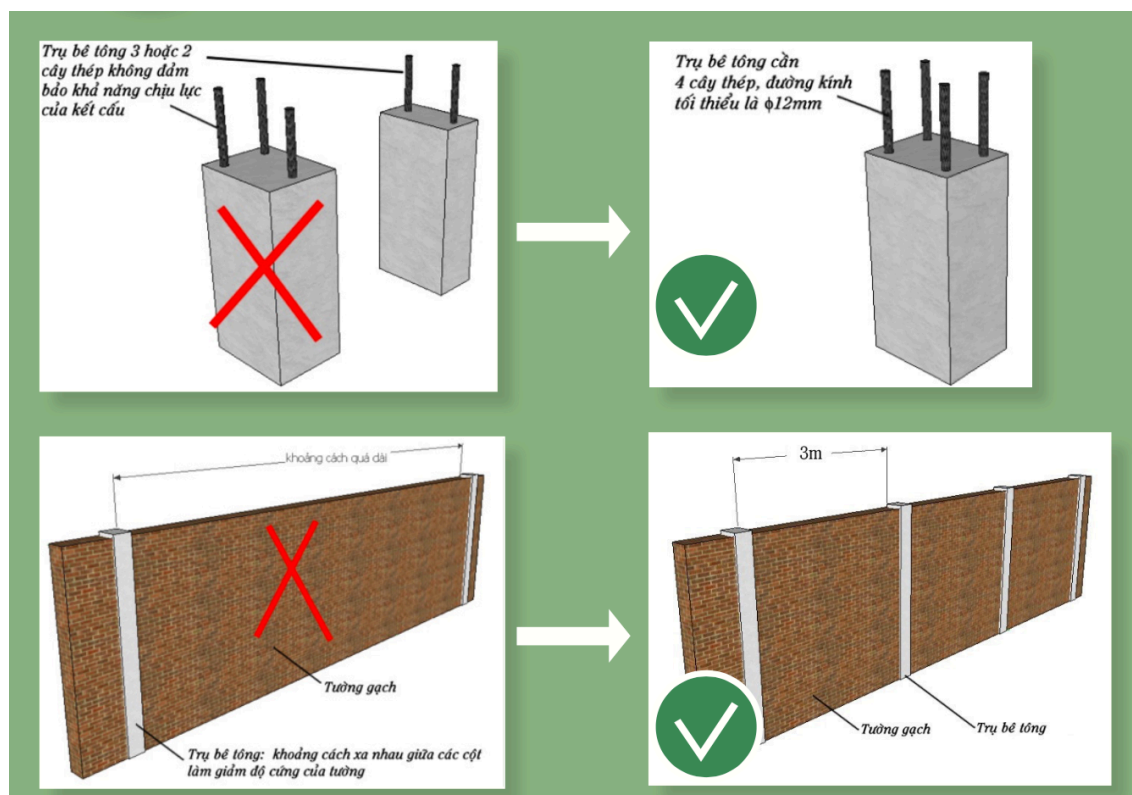
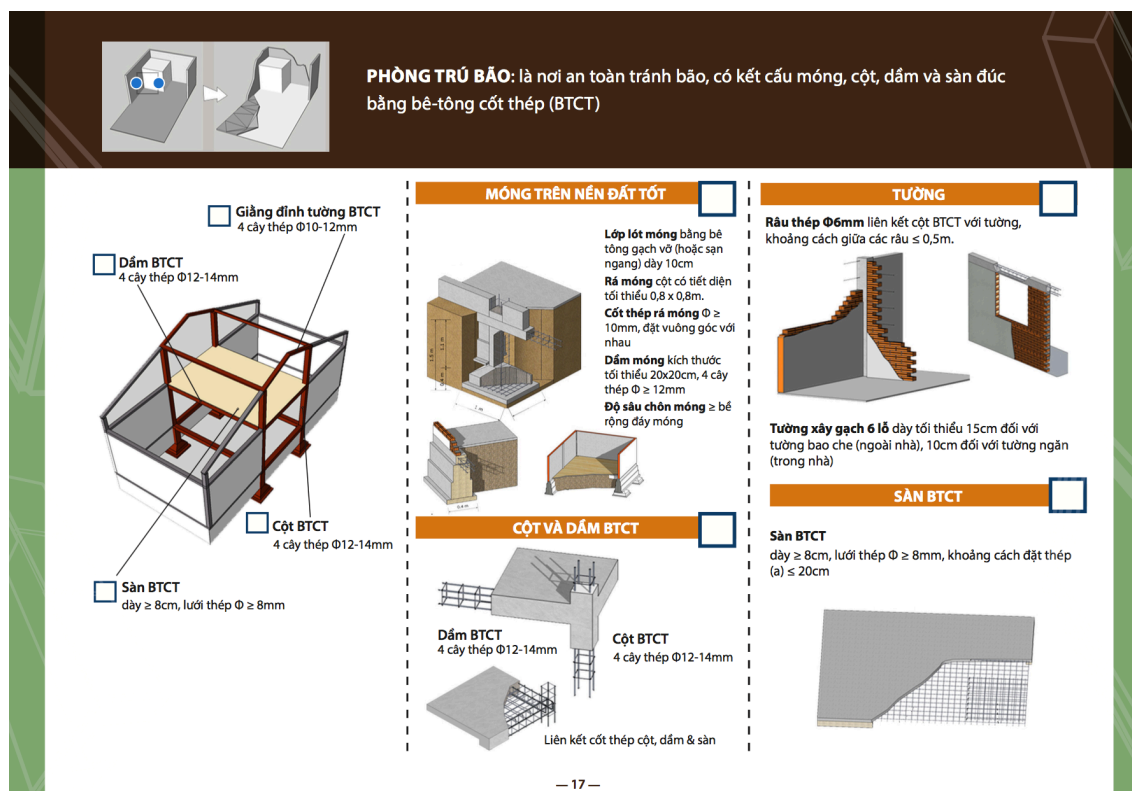
43 of the targeted 106 households, that is 41 percent, accepted package 1. For package 2, 71 out of 108, or 66 percent of the targeted households accepted. All of the targeted 41 households accepted package 3 after the two weeks consideration period.

4.1 Technical design and training local builders

In mid-May 2017, the Women's Union, in collaboration with ISET and HCE, organized a meeting to inform representatives from the city of Da Nang as well as district and ward leaders, about the project.

A presentation was held by ISET on how to use the technical manual for storm resilient housing construction. The technical manual consists of three documents targeting three local actors (low-income households, local builders, and local staff/officials) who are usually involved in low-income housing construction activities. See Figure 4.1 for an example from the technical manuals. The manual is designed in a way that allows these local actors to generate and shape resilient-housing designs without the engagement of building professionals (i.e. architects, engineers). The manual was developed under a research project conducted by the Da Nang Department of Foreign Affairs in cooperation with ISET and under the financial support of the Asian Development Bank (ADB).

Figure 4.1 Excerpts from the technical manuals



A local design team is responsible for providing the housing designs under the three packages. The team is led by an architect who worked with local communities to propose safe housing designs after the last typhoons (e.g. Typhoon Xangsane in 2006), and has experience in designing storm-resilient low-income housing. The WU

signed a contract with him, under his individual affiliation, stating that he and his team will propose designs for all the houses to be built/retrofitted. WU selected this local architect so as to minimize the costs of design services, in line with the limited financing allocated to technical support for the project (1 million VND per house). The architect and his team (2 draft persons) have been invited to several technical trainings organised by WU, in collaboration with ISET, to ensure that key principles and elements of storm resilience are well perceived and incorporated in the housing design proposals. To propose a design for a house, the design team has to visit each household at least two times, (i) one for checking their needs, physical conditions of existing house, their contribution (in cash and/or in kind), and their financial ability; and (ii) one for finalising the design with the household, where they seek agreement from both sides before applying for a building permit and then signing the loan/grant contract with WU.

The local builders participated in training classes on storm-resilient housing construction, the WU organized one class per district.

During the implementation of the project, representatives from ISET have made several visits to houses under construction to monitor the construction activities and make sure that the technical designs are correctly implemented.

In early June, ISET, the WU and the design team visited three households – one for each of the different incentive packages. At the time, all households were doing construction on their house.

Some issues were noticed. The perhaps most important issue that some households had changed the housing design during construction. The WU and the design team worked together to find a way to control and advise families to stick to storm and flood (if concurrently exposed to flooding) safe designs. It was also decided that any deviations should be reported.

Another concern was the progress of the design team. The WU requested that they increase their production, and by mid-July, the Women's Union and the technical design team had inspected 93 households, of which 69 households had received housing designs.

Figure 4.2 Photos from housing construction and WU-meeting in Da Nang



ISET and the WU visits a house under construction.

WU-held meeting with ISET, and the city and districts of Da Nang.

4.2 Disbursement of loans and grants

In late May, the Women's Union started disbursing a number of package 1 and 2 loans to households that had demolished their old houses and started construction of new ones, or had started retrofits. It was decided that package 2 households would not receive grants until later in the construction process.

The distribution of grants for package 3 households also started in May, and for these households the grant was distributed by local branches of the WU, along with other types of support. Three main kinds of support are given together with support from the WU support: household contribution (in cash and in kind), grant from Vietnam Fatherland Front and other donators, and borrowed sources from friend, local credit banks and VBSP.

Figure 4.3 A house under construction



By mid July, the following disbursements had been made:

- Package 1: 17 percent of households had received a loan.
- Package 2: 39 percent of households had received a loan. 18 percent had received a grant
- Package 3: 50 percent of the budget had been disbursed to households.

The plan now was to distribute the remaining funds by the end of September 2017. However, by this time, a number of households had decided to withdraw from the project for various reasons.

In Table 4.1 we have summarized the reasons for why households chose to withdraw from the program. Out of the 35 households that have withdrawn from the program, half state their reason as being: (1) Sickness/death in the family; or (2) lack of funds. The ones lacking funds claim the packages are insufficient for completing the planned renovation. Other reasons for opting out are: (3) Changing one's mind, and deciding not to renovate; (4) being in the government planning zone Hoa Nhon, where local authorities prohibit new housing; (5) choosing to renovate without an incentive package; (6) not being able to decide on the time of construction; (7) various other

reasons. 11 of the households that withdrew from the program had already received technical designs from the design team.

The reported reasons demonstrate how vulnerable these households can be to shocks, such as sickness or death in the family.

Table 4.1 Reasons for households withdrawing from the program

Reason for withdrawing	Package 1	Package 2	Package 3	Total
Sickness/death in family	4	4	2	10
Lack funds for renovation	2	4	1	7
Decided not to renovate	3	1	0	4
Located in government planning zone	0	4	0	4
Renovates without loan	2	0	1	3
Undecided on time for construction	2	1	0	3
Others	3	1	0	4
Total	16	15	4	35

Other households changed the time of construction, and some households that participated in the baseline survey and initially did not want to improve their house had changed their mind, and now wanted in on the project. It also turned out that a number of households that were offered package 2, declined to take the loan, and only wanted the small grant of 10 million VND as well as the technical design and assistance. These households were afraid that they would not be able to manage the monthly loan repayments, and preferred to co-finance more of their construction costs through other sources. As explained by the WU, these households have savings and/or access to funding, usually from relatives and close friends, without or with a very low interest rate and long-term payment terms.

4.3 Final take-up, progress of construction and financing

Out of the 155 households that originally accepted the incentive packages, 35 have later withdrawn from the project. Table 4.2 shows the status of the households that originally opted for the incentive packages. Not surprisingly, 31 out of the 35 withdrawing households were signed up for package 1 and 2. Unlike package 3, the first two packages include a loan, which is a cost for the households. Package 1 has the highest relative number of withdrawers. This is also not surprising, since the package lacks a grant, and is the least favourable deal for the households.

Although some have withdrawn from the project, most of the households that signed up still participate. As shown in Table 4.2, 41 households had finished construction by September 1st, of which 13 houses were new constructions, and 28 houses were retrofitted. Another 61 households are in the process of completing construction, 16 of these constructing new houses, and 45 retrofitting their existing houses. 18 households have not yet begun construction, but are set to finish by December 2017, or March 2018. These households are part of the planned implementation in the next reporting

period, along with 24 newly targeted poor households for package 3, as described in Chapter 5.

Table 4.2 Status for households in the project

		Package 1	Package 2	Package 3	Total
Households originally signed up		43	71	41	155
Households withdrawing		16	15	4	35
Construction completed	New construction	0	10	3	13
	Retrofit	3	16	9	28
Construction in process	New construction	3	3	10	16
	Retrofit	14	18	13	45
Total construction in M3		20	47	35	102
Construction planned for M4		7	9	2 + 24	42

The packages were offered so as to induce households to invest in more storm-resilient housing. We have registered the type of improvements that have been made so far, these are summarized in Table 4.3. So far, 102 households have begun or completed building/retrofitting their house. The majority (62 percent) have only undertaken one type of improvement, whereas the remaining households have undertaken two or three improvements. For this reason, the number of improvements in the table below do not sum to 102.

The most common improvement is to replace roof covers (55 percent), followed by building a concrete slab on one room (38 percent), and building a concrete roof (13 percent). By adding a concrete slab, the households are creating a 'solid' room. This room functions as a 'storm shelter' for family members during typhoons, which is considered by the technical manual mentioned earlier to be one of the most important resilience elements of low-income housing in Da Nang. Roof improvements are in general more common. This may include adding steel bars and bracings to strengthen roof frames, and adding strong connections to fix roof frames to walls underneath.

Households in packages 2 and 3 are more likely to have undertaken larger investments, such as replacing the roof with a concrete roof or undertaken two improvements. This falls in line with these packages being more generous.

Table 4.3 Types of housing improvements

	Package 1		Package 2		Package 3	
	New build	Retrofit	New build	Retrofit	New build	Retrofit
Roof-related						
Concrete roof	3		9		2	
Replace roof covers		11		30		15
Reinforce roof		2		2		1
Solid house-related						
Concrete slab built on one room		3	4	12	7	12
Renovate/rebuild sub-house		3				1
Build a new room				1		
Other improvements						
Heighten the walls		1				1
Replace doors and windows		1		1		
Reinforce walls		1				
Heighten floor/reinforce floor		1		3		4
Total	3	23	13	49	13	34

The Women's Union has collected data on each of the 102 households' total construction costs and sources of financing. The costs for households in each package are summarized in Table 4.4. In addition to the loan provided, households in package 1 have financed housing constructions with own contributions (cash- and in kind) and loans from other sources, such as family and friends. Households in package 2 received both a loan and a grant. In addition, households have contributed with cash- and in kind, and some households have also borrowed other sources. One household has also received funding from other donors. Households in package 3 have only received a grant. Some households have also received funding from other donors, such as the Vietnam Fatherland Front or local donors. In addition, they have contributed with co-financing and some have received loans from others.

The average construction costs per households are highest in the package 2 group, around 93 mill. VND. As expected, the average costs are higher for households that are financing a new construction, as opposed to retrofitting.

Table 4.4 Total costs of construction (mill. VND) and sources of financing,

Pack- age	Type	Num- ber of house- holds	Total costs	Average cost per house- hold	Total amounts				
					Loans WU	Grants WU	House- hold co- financing (cash- and in kind)	Other donors	Loans from other sources
1	Retrofit	17	845	50	510	-	295	-	40
	New	3	520	173	90	-	330	-	100
	Total	20	1 365	68	600	-	625	-	140
2	Retrofit	34	2 019	59	420	340	955	-	304
	New	13	2 360	182	240	130	1 500	20	470
	Total	47	4 379	93	660	470	2 455	20	774
3	Retrofit	22	1 220	55	-	440	364	122	294
	New	13	1 563	120	-	390	481	249	443
	Total	35	2 783	80	-	830	845	371	737

4.4 Characteristics of households accepting and rejecting packages

We investigate the characteristics of the households that have accepted and rejected packages 1 and 2, so as to understand whether there are any systematic differences between the two group. In total 214 households were offered package 1 or 2. Of these, 82 households have accepted the packages. This includes the households that have begun construction after August 2017.

In Table 4.5 we report mean characteristics of the sample of households that accepted and rejected packages 1 and 2. We exclude the households in the control group, since these were not offered an incentive package. The households are similar on demographic characteristics, regardless of whether they rejected or accepted the offer. However, the average monthly income per person is around 1900 thousand VND (in November 2017) among the households that accepted, whereas the households that rejected have on average a lower monthly income per person (1500 thousand VND). This suggests that the packages are not generous enough in order to induce the poorer households to accept. The income difference stems primarily from differences in income from non-farming self-employment business. There is too little variation in the other sources of income (fishing, cropping, etc.) to investigate any systematic differences.

The households that rejected the offer, own largely the same types of assets as those that accepted. The exceptions are that a large share in the former group own a gas stove (28 percent) and fewer own a washing machine (28 percent), compared to those that accepted. Packages 1 and 2 give the households incentives to invest in their houses. It is therefore relevant to investigate whether there are any systematic differences in housing conditions between those that accepted and rejected prior to the offer. In

Table 4.6 we report the means for variables capturing the housing conditions of the households that accepted and rejected. Again, there are few systematic differences between the two groups. We find, however, that a larger share of the households that accepted, live in houses with metal roof sheets (90 percent), compared to the households that rejected (80 percent). A larger share of the households that rejected have clay tiles as roofing. We are particularly interested in the resilience components of the house. As seen from

Table 4.6, the figures are largely the same across the two groups.

Table 4.5 Differences between households that accepted and rejected: household composition, income and asset ownership

	Accepted	Rejected
Household composition		
Female household head	0,515 (0,044)	0,500 (0,056)
Age of household head	55,152 (1,169)	52,415 (1,413)
Years of schooling of household head	7,379 (0,352)	7,854 (0,433)
Household size	4,265 (0,137)	4,195 (0,182)
Income		
Monthly income (1000 VND) per person	1457,579 (65,370)	1919,839 (140,916)
Self-employment: Monthly income (1000 VND) per person	736,377 (78,343)	1282,447 (181,781)
Waged labor: Monthly income (1000 VND) per person	1210,681 (63,959)	1403,313 (96,053)
Asset ownership		
Owns motorbike	0,909 (0,025)	0,878 (0,036)
Owns refrigerator	0,598 (0,043)	0,671 (0,052)
Owns washing machine	0,280 (0,039)	0,402 (0,054)
Owns air conditioner	0,030 (0,015)	0,061 (0,027)
Owns telephone	0,015 (0,011)	0,012 (0,012)
Owns TV	0,652 (0,042)	0,646 (0,053)
Owns computer	0,023 (0,013)	0,073 (0,029)
Owns gas stove	0,280 (0,039)	0,122 (0,036)

Household member has a loan	0,492 (0,044)	0,415 (0,055)
N	132	82

Note: Standard deviations are given in parentheses.

Table 4.6 Differences between households that accepted and rejected: housing

	Accepted	Rejected
Owns house	0.962 (0.017)	0.963 (0.021)
Years lived in house	21.492 (1.175)	20.110 (1.316)
Walls: bricks	0.718 (0.039)	0.695 (0.051)
Walls: cement blocks	0.229 (0.037)	0.232 (0.047)
Roof: metal sheets	0.794 (0.035)	0.902 (0.033)
Resilience components		
House has a solid room	0.107 (0.027)	0.110 (0.035)
Continuous/ring RC beam at the foundation level	0.099 (0.026)	0.073 (0.029)
Continuous/ring RC beam at the roof level	0.061 (0.021)	0.037 (0.021)
RC pillars inside walls	0.122 (0.029)	0.122 (0.036)
RC roof	0.031 (0.015)	0.012 (0.012)
Clay tiles roof	0.122 (0.029)	0.049 (0.024)
Corrugated steel roof	0.916 (0.024)	0.976 (0.017)
Roof bracings	0.076 (0.076)	0.012 (0.012)
N	132	82

Note: Standard deviations are given in parentheses. RC=reinforced concrete.

5. Plan for implementation for final households

Since we have already selected and initiated construction for most of the nominated households, we are well ahead of the scheduled implementation. As shown in Table 4.2, 41 households have finished construction, while construction is in process for 61 households. A total of 18 households that were nominated at the beginning of this reporting period are planning to construct or retrofit their homes between September 2017 and April 2018.

In accordance with the plan for implementation set out in the Incentive mechanisms report, the Women's Union have nominated another 24 poor households to be offered package 3 in the coming implementation period. These households have already been visited and surveyed by the Women's Union, and half of the households plans to retrofit their homes, while the other half plans to construct a new house.

In addition to continuing the implementation of the program in the coming milestone, we will also do a follow-up survey of the 306 households that were surveyed in the baseline survey. We plan to survey all the households in the control groups, and all households in package 1 and 2 that have completed construction by December, in December 2017/January 2018. This means that the survey will, for most households, be carried out at the same time as the baseline survey, only one year later. One advantage of this is that it makes the data we record on expenditures and income more comparable.

The poor households in package 3 are not part of the randomized controlled trial. For these households, impact assessment and evaluation will be based on a qualitative approach. We plan to conduct focus group discussions to investigate the role of the incentive package, and the impact of the investments for these households. The focus groups, as well as surveying the final households in packages 1 and 2, will take place in March, after the Vietnamese new year holiday. The plans are shown in the updated work-plan in Annex 2.

6. Conclusion

From January to September 2017, 102 poor and near-poor households in Da Nang have retrofitted or reconstructed their homes to become storm resilient over the past eight months of project implementation. About half of the households are female headed. All households have received information, technical assistance and financial incentives through loans and/or grants. Information and technical guidance has also been made available to local builders, local Women's Union representatives and local leaders in Da Nang.

Preliminary results from the baseline data and the current take-up of each of the incentive packages, suggest that a grant component may be required in order to incentivize households to invest in climate resilient housing. Access to information, technical assistance and a small loan through the Women's Union revolving credit scheme, does not seem to reach relatively worse off households among the targeted near-poor. As expected, we also see that households that are offered a less generous package on average invest in fewer "resilience components", when retrofitting or reconstructing their homes.

The actual take-up for especially the loan only package, turned out to be quite low. We also experienced that people that were offered a small grant along with a microloan preferred not to take up the loan, and rather do less extensive investments and co-finance more of the construction from other sources. One reason for this may be that the households do not perceive large investments in resilience improvements as sufficiently profitable to take up a loan. The financial benefits of such an investment are only realized when the household avoids the cost of storm damage. As discussed in the inception report, poor households may put disproportionate weight on the present as opposed to the future, and may delay investment, and then regret not investing when faced with storm damage. It may also be that the informational incentives are not sufficient. The households may not know enough about the benefits of investing, for instance if they doubt the actual resilience of the retrofit/construction. We should of course also acknowledge that the investment may actually not be beneficial for some households after all, and that they make the right decision by declining the program, or making a smaller investment. Some households may use other, less expensive techniques, like putting sand bags on their roofs or moving their belongings from areas that may become flooded, in the case of a storm. If the household has other pressing investment needs, like medical or educational expenses, it may be a good decision not to make the investment. Based on the reasons households provide for dropping out of the program, we also see that households are very vulnerable to shocks, such as death or illness of family members. Without formal mechanisms (insurance) or informal mechanisms (traditional risk sharing arrangements between family, friends, neighbours) for dealing with such shocks, they may have lasting negative impacts on the households. We will investigate the reasons for choosing not to invest in climate resilient housing as we start our evaluation of the program in the coming milestone.

The impact of the investments that the households have made, will be investigated in the remaining months of the project. In the next reporting period, an additional 42 households are scheduled to reconstruct or retrofit their homes. This means that as many as 144 households may have benefitted directly from the project by the end of the next reporting period. Our robust method of impact evaluation, with a planned follow-up survey in the coming period of both targeted households and a control group, makes us confident that we can gain valuable insights from this project that may benefit many more households.

ANNEX 1. Information brochure to households in package 1



DỰ ÁN THỰC HIỆN CÁC SÁNG KIẾN LÀM NHÀ Ở CHỐNG BDKH CHO NGƯỜI NGHÈO ĐÔ THỊ TẠI VIỆT NAM

Thông tin chi tiết liên hệ: 0511.3812143

GÓI 1

A. MỤC TIÊU CỦA DỰ ÁN

1. Cải thiện khả năng chống chịu của những hộ dân dễ bị tổn thương tại các phường/xã trên địa bàn Thành phố Đà Nẵng.
2. Nâng cao nhận thức và năng lực của các cộng đồng dễ bị tổn thương để thích ứng với biến đổi khí hậu và thiên tai.

B. CHƯƠNG TRÌNH TÍN DỤNG NHÀ Ở CHỐNG BẢO

1. Đối tượng được vay vốn

Các hộ cận nghèo

2. Điều kiện được vay vốn

- + Nhà ở xuống cấp, không an toàn trước gió bão
- + Có nhu cầu xây mới hoặc sửa chữa nhà ở.
- + Có một khoản tiết kiệm hoặc có thể huy động nguồn lực khác để xây hoặc sửa chữa nhà ở.
- + Có khả năng trả nợ.
- + Có giấy tờ pháp lý hoặc các tài liệu liên quan để chứng minh quyền sử dụng đất.

3. Quyền lợi của người vay vốn

- + Được vay vốn không có thế chấp và theo thủ tục vay vốn đơn giản.
- + Được hỗ trợ thiết kế miễn phí cho việc xây dựng lại hoặc sửa chữa ngôi nhà.
- + Được hỗ trợ giám sát kỹ thuật trong quá trình xây dựng.
- + Tham gia các hoạt động nhằm nâng cao nhận thức về nhà chống bão và tham gia nhóm tiết kiệm vay vốn tại địa phương.

4. Trách nhiệm của người vay vốn

- + Xây hoặc sửa chữa nhà theo các nguyên tắc kỹ thuật chống bão.
- + Thanh toán vốn và lãi, và phải đóng tiền tiết kiệm vào những thời điểm quy định.

5. Cơ chế tín dụng

- + Mức vay: không quá 30 triệu đồng/hộ/nhà
- + Thời gian vay: không quá 40 tháng
- + Lãi suất: 0,75%/ tháng cho số tiền vay còn lại
- + Phương thức trả: Trả gốc, lãi hàng tháng bắt đầu từ tháng thứ nhất của chu kỳ vay.

6. Cơ chế tiết kiệm

- + Mức tiết kiệm đóng 0.2%/ mức vay
- + Hộ vay chỉ được rút tiền tiết kiệm vào cuối kỳ vay, khi đã hoàn trả đầy đủ cả gốc và lãi.

7. Giải ngân và giám sát

- + Giải ngân trực tiếp cho hộ vay sau khi nhà đã tháo dỡ
- + Giám sát các hộ vay nâng cấp, xây mới nhà ở đảm bảo kỹ thuật làm nhà chống bão

TÀI LIỆU HƯỚNG DẪN KỸ THUẬT XÂY NHÀ CHỐNG BÃO

Nhà chống bão là nhà có nơi an toàn để trú ẩn, đảm bảo tính mạng dù cho nhà ở có bị tốc mái, sụp tường.

+ Trong nhà phải có nơi trú ẩn an toàn khi có bão lớn xảy ra

+ Nơi trú ẩn có thể là phòng ngủ, phòng thờ, phòng khách.. và được dựng bằng khung và sàn bê tông cốt thép, tường dày từ 150mm



Tường bị sụp nhưng vẫn còn sàn lững để núp bão



Sàn lững bê tông, có tác dụng chống tác động ngang của gió bão và nưần lụt

Khi xây nhà chống bão lưu ý 3 yếu tố quan trọng sau:

I. Phần móng: chịu lực toàn bộ tải trọng ngôi nhà

+ Phải có hệ giằng móng đảm bảo chịu lực toàn bộ của ngôi nhà để chống sụt lún nền móng.



II. Phần thân: chịu lực tác động của gió bão

+ Hệ kết cấu phải tạo thành hệ khung cứng

+ Vật liệu được sử dụng đúng quy cách

+ Tường xây từ 150mm trở lên

+ Tường ngang và tường dọc được bố trí hợp lý, có hệ giằng thích hợp



III. Phần mái

+ Nếu sử dụng xà gồ gỗ phải liên kết bằng đinh vít có tán lớn.

+ Nếu sử dụng xà gồ thép C hoặc thép hộp phải liên kết bằng móc sắt.

+ Khoảng cách giữa các liên kết đinh vít hoặc móc sắt ≤ 350 mm

+ Khoảng cách xà gồ ≤ 900 mm

+ Sử dụng tấm lợp có chiều dày $\geq 0,4$ mm (không nên sử dụng tôn giả ngói)

+ Phần vươn ra của tấm mái ≤ 250



Chắn đỉnh tường

ANNEX 2: Updated work-plan

Milestone Inception	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 - Eligibility criteria for previous selection of households	Tuan Anh Phong	Phong, WU			3		
	Tentative incentive packages for discussion	Henrik, Sofie				6		

Milestone Inception	1: Tasks	Person responsible	Other contributors	Due date, 2016				
				Apr	May	Jun	Jul	Aug
	Develop proposal on empirical strategy for testing of incentives - Quantitative approach with sampling etc. - Measuring technology take-up - Measuring household level resilience - Qualitative approach with focus groups, case studies etc.	Henrik, Sofie				6		
	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	CCCO					

Milestone Inception	1: Tasks	Person responsible	Other contributors	Due date, 2016				
				Apr	May	Jun	Jul	Aug
	Phong)							
	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	Haakon, Sofie						15

Milestone Inception	1: Tasks	Person responsible	Other contributors	Due date, 2016				
				Apr	May	Jun	Jul	Aug
	Request for disbursement							

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)	Analysis of results from focus groups, with focus on current hurdles for uptake of climate resilient housing	Tuan			15			
	Skype meeting on work plan for milestone 2, design of incentive packages and plan for workshop		Vista, HCE, ISET		21			
	Proposal on refined incentive packages for discussion among partners	Henrik				6		
	Skype meeting on refined incentive packages		Vista, HCE, ISET			10		
	Plan for implementation of incentives – draft for workshop discussion	Henrik	Phong			x		
	Plan for evaluation in field – draft for workshop discussion	Sofie	Tuan			x		
	Workshop in Vietnam • Finalize incentive packages and plan for	All				24-28		

Milestone 2: Incentive mechanisms design	Tasks	Person responsible	Other contributors	Due date, 2016				
				Aug	Sep	Oct	Nov	Dec
	evaluation in field • With due diligence meeting from NCF + visit to Norwegian Embassy in Hanoi							
	Designing and pre-testing questionnaire	HCE	Vista, ISET				27	
	Informing wards and nominating 306 households (6 in each of 51 wards)	WU						15
	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							9
	Internal draft incentive mechanisms report							7
	Comments incentive mechanisms report due							12
	Progress and Financial Report							15
	Disbursement request							15
	Due: Report on incentive mechanisms, including plan for evaluation in field and plan for use of							15

Milestone 2: Incentive mechanisms design	Tasks	Person responsible	Other contributors	Due date, 2016				
				Aug	Sep	Oct	Nov	Dec
	incentives first 30 houses Progress report and financial report Request for disbursement							

Milestone 3: First 70 houses	Tasks	Person responsible	Other contributors	Due date, 2017									
				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	WU	ISET	x	x	x							
	Baseline survey	HCE	Vista, ISET	x	8								
	Randomization of households into treatment and control groups	Vista			16								
	Offering packages to households in treatment groups	WU	ISET										
	Local WU reports list of accepted households	WU	ISET			26							
	Assessment of selected households/distribution of incentives	WU	ISET				5						
	Construction start						12						
	Monitoring implementation					x	x	x	x	x			

Milestone 3: First 70 houses	Tasks	Person responsible	Other contributors	Due date, 2017									
				Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	Workshop in Vietnam to assess progress, implementation experiences and data collection Tentative dates:						x						
	Revised list of households for packages 1 & 2	WU						12					
	Tentative list of households for package 3	WU						12					
	Transferring funds for packages 1&3 and partial funding for package 3	VISTA						18					
	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)												1

Milestone 3: First 70 houses	Tasks	Person responsible	Other contributors	Due date, 2017									
				Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	<ul style="list-style-type: none"> - 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, including plan for final 30 houses											15	
	Comments monitoring report												1
	Progress and Financial Report												15
	Audit												x
	Disbursement request												15

Milestone 3: First 70 houses	Tasks	Person responsible	Other contributors	Due date, 2017									
				Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	<p>Due: Monitoring report and plan for use of incentives final 30 houses</p> <p>Progress report and financial report</p> <p>Request for disbursement</p>												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) 6) Workshop to discuss preliminary results (HCE, co-lead Vista and ISET)	Continued implementation for 42 households, 7 package 1, 9 package 2 and 26 package 3.			x	x	x	x	x	x	x	
	Follow-up survey of households in control group, and all packages 1 and 2 households that have completed construction				x						
	Monitoring			x	x	x	x	x	x	x	
	<ul style="list-style-type: none"> Implementation review workshop Workshop to discuss preliminary results from follow-up survey Tentative dates: January 15 th -19 th							x			
	Vietnamese New Year								x		
	Follow-up survey for any remaining households from package 1 and 2 Focus group evaluation for package 3 households									x	

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
	Draft monitoring report due									31	
	Inputs to Financial Report from each partner due									31	
	<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									31	
	Comments monitoring report										6
	Progress and Financial Report										15
	Disbursement request										15
	Due:										15
	Progress report and financial										

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
	report Request for disbursement										

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	Follow up survey								
	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 - Inputs to Table 1 of Financial Report (costs) - Inputs to Table 2 of Financial Report (sources of funding, co-financing)								

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

References

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