



Final Report

Implementing Incentives for Climate Resilient Housing Among the Urban Poor in Vietnam

Grantee: Vista Analyse

Local Partners: Institute for Social and Environmental Transition (ISET), Da Nang City Women's Union (WU) and Hue College of Economics (HCE)

Project start date: *15/04/2016*

Project end date: *31/12/2018*

27. March 2019

Date

Person responsible (Signature)

Haakon.vennemo@vista-analyse.no
+47 911 36 716

HAAKON VENNEMO
Project manager, Vista Analyse

TABLE OF CONTENTS

1.	EXECUTIVE SUMMARY	3
2.	ASSESSMENT OF IMPLEMENTATION OF THE PROJECT	4
2.1	Achievement of Outputs and Objectives	4
2.2	Deviations from the planned Outputs and Activities.....	7
2.3	Achievement of NCF indicators	7
3.	CLIMATE CHANGE.....	7
4.	DEVELOPMENT IMPACTS AND CROSS-CUTTING ISSUES	9
5.	ASSESSMENT OF THE RESULTS AND IMPACTS OF THE PROJECT	9
5.1	Relevance	9
5.2	Effectiveness.....	10
5.3	Efficiency	11
5.4	Impact.....	12
5.5	Sustainability	14
6.	POTENTIAL FOR SCALING UP AND FOLLOW-UP INVESTMENTS	15
7.	LESSONS LEARNED.....	16
8.	FINANCIAL SUMMARY	16
9.	CONCLUSIONS AND RECOMMENDATIONS	17

ANNEXES

Annex 1	Project completion fact sheet
Annex 2	Updated Logical Framework Matrix
Annex 3	Pictures
Annex 4	Other supplementary documentation

1. EXECUTIVE SUMMARY

Climate change poses a significant threat in rapidly growing cities in Vietnam. Many households cannot afford permanent, high-quality houses and are at risk of experiencing severe structural damage during seasonal typhoons, which appear to be increasing in intensity due to climate change. The damage further impoverishes these households. One important typhoon-prone city is Da Nang, the largest city in central Vietnam.

Previous analysis by project partners ISET and Hue College of Economics has shown that storm-resilient housing offers clear economic benefits for households. However, poor and near-poor households may have limited information of the benefits of safer housing, have limited knowledge of safe building techniques, may be credit constrained or face combinations of these hurdles. Incentives, both in the form of innovative finance and information measures, are therefore needed to encourage investment in climate resilient housing technologies currently available at relatively low cost. The Women's Union (WU) in Da Nang City works to encourage low income households to make their homes resilient to typhoons.

The project considered which forms of incentives are the most appropriate and effective in encouraging typhoon-resilient housing: Free technical assistance? A loan that approximately covers the additional cost of the safe elements of a house? A small grant that may act as a lever for generating additional funding? Or is a large grant needed, especially for the poorest households?

The goal of the project was to contribute to increasing the penetration of climate resilient housing in Vietnam. The objectives were: 1) to develop practical and sustainable incentives for private and public sector actors in Da Nang city to build climate resilient housing for the benefit of low-income households; 2) to build the capacity of Da Nang Women's Union as a catalyst for climate resilient housing.

To understand which incentives are the most appropriate for households in Da Nang we carried out a randomized control trial ("RCT"). The size of the project only allowed a limited RCT and the impact of the incentives on long-term resilience can in any case not be determined until more time has passed. Still, interesting conclusions emerged:

- For near-poor households, a subsidized loan and free technical assistance is not sufficient to motivate most households to invest in climate resilient houses. Converting one third of the loan to a grant (corresponding to 5-10 percent of the total cost) more than doubles the take-up and incentivizes households to invest in climate resilient homes, consistent with the idea that a small grant acts as a lever.*
- A larger grant, as well as technical support, is needed for poor households, but we find that a relatively small grant of about 30 percent of the total cost enables poor households to leverage a large amount of external funding.*

We recommend that the local and central government in Vietnam base their policies on the conclusions of the project. A small grant along with technical assistance seems to be necessary and sufficient to motivate a large number of near-poor households to invest

in climate resilient housing. The grant could be as low as 5-10 per cent of the cost of a home, but it should be larger for poor households than for near-poor. The size of the subsidy for near-poor households is similar in size to what has previously been spent on supporting house repairs after severe typhoons.

In future work it will be important to re-examine these conclusions using a larger sample of households. To better understand the long-run impacts of investing in climate resilient housing, we recommend revisiting the households of the RCT in Da Nang in 2-5 years' time.

2. ASSESSMENT OF IMPLEMENTATION OF THE PROJECT

2.1 Achievement of Outputs and Objectives

Planned Objectives and Outputs	Indicator(s):	Achievement of the objectives and outputs:
<p>Objective 1: To develop practical and sustainable incentives for private and public sector actors in Da Nang city to build climate resilient housing for the benefit of low-income households</p> <p>Objective 2: To build the capacity of Da Nang Women's Union as a catalyst for climate resilient housing</p>	<p>Adoption of new incentives by local government, financial, construction or civil society agencies to support storm-resilient housing development.</p>	<p>Government agency: An official announcement by Da Nang City People Committee has strongly recommended all the city's departments and civil societies involved in the present and future housing programs of the city to apply resilient housing models initiated by Women's Union wherever and whenever possible.</p> <p>Government and civil society agency: The printed technical manuals and communication leaflets, with key lessons/messages from the project, have been delivered to and applied by relevant city departments, agencies and organisations.</p> <p>Civil society agency: Project partners WU and ISET have replicated a similar model to this project in Quang Tri Province. HCE is currently supporting a large UNDP program (4000 houses) with lessons learned from the current project</p> <p>We cannot document that financial and construction agencies have adopted the new incentives. Hence we can document that according to this indicator objective 1 is <i>partially achieved</i>.</p>

	Number of housing units upgraded or built through new incentive mechanisms administered by WU.	135 housing units were upgraded or built, as opposed to a target of 100 units. According to this indicator objective 1 is <i>achieved</i> .
	WU influence in promoting adoption of incentives by other actors.	An official announcement by Da Nang City People Committee has strongly recommended all the city's departments and civil societies involved in the present and future housing programs of the city to apply resilient housing models initiated by Women's Union wherever and whenever possible. According to this indicator objective 2 is <i>achieved</i> .
<i>Output 1: Revised work-plan and coordination mechanisms between partners agreed, and detailed research on low-income housing segments completed</i>	Updated work-plan, schedule, reporting and coordination mechanisms finalized between all partners.	<i>Achieved</i>
<i>Output 2: Incentive mechanisms (hard: financing; soft: information and technical assistance) for different segments of low-income housing market are designed and described in statistical terms. Implementation plan incentives for first 70 houses</i>	Descriptions of different low-income housing segments, key actors involved in their construction, and identification of main hurdles for investment in climate resilient housing.	<i>Achieved</i>
	Specific incentive mechanisms designed for different low-income housing segments with engagement of local stakeholders	Three incentive mechanisms were designed, consisting of a loan, a loan and a grant, and a grant only. The size of the incentives approximately covered the additional cost of the safe elements of a house. All three mechanisms included free technical assistance. <i>Achieved</i> .
<i>Output 3: Innovative incentive mechanisms are implemented in the field, and climate resilient 100 homes are built or upgraded in two phases by households and local builders. Implementation plan for incentives for the last 30 homes is drawn up.</i>	100 housing units upgraded or built using all incentive mechanisms.	135 housing units were upgraded or built. <i>Achieved</i> .
	Survivability of new or upgraded housing in a severe storm.	<i>Not tested</i> since there has not yet been a severe storm to hit the 135 housing units. However, housing units of a similar design have withstood recent storms.
<i>Output 4: The impacts of the incentive mechanisms for different actors in the housing sector are documented through</i>	Report on economic analysis of incentive mechanism performance,	<i>Achieved</i> .

<i>analysis of pilot experience. Business plan for replication and scaling up</i>	benefits and incidence.	
<i>Output 5: Synthesis of lessons from incentive design, business plan and economic analysis of performance is shared in seminars and through direct consultation with public and private housing sector actors to promote replication and sustainability of incentives</i>	At least 2 workshops / meetings to share project results.	18 trainings, 2 citywide forums and 2 multi-stakeholder workshops were conducted. <i>Achieved</i>
	Number of participants from different stakeholder groups participating in project workshops / meetings	Totally the events had 1482 participants, of which 1188 came from the WU system and the rest were local builders and household members from the households that received support for house construction or retrofitting. <i>Achieved.</i>
	At least 25% female-headed houses newly constructed or retrofitted	72% of households were female headed. <i>Achieved.</i>
	At least 25% female participants joining workshops/meetings -/trainings	80% of participants were women. <i>Achieved.</i>
	Number of lost working days reduced Number of lost school days of children reduced Number of working days for local builders	Not verifiable in short run (first two) not likely to be significant (last) ¹
	Number of jobs/working days for local building teams. Coverage of potential insurers. Number of jobs/working days for technical assistants	Not likely to be significant/ not applicable for insurer ²

¹ The results of our randomized control trial show that households in the control group (i.e. households that did not receive any support from the project) were just as likely to build a new house as households that were offered the incentive packages (however the latter households built more resilient homes). This means that there is not likely to be any effect of our project on building activities, and therefore job creation in this sector.

² We consulted with the Swiss Re insurance group, as explained in chapter 2 of our inception report (Vista Analyse, 2016). However, it was not possible to incorporate an insurance component into our incentive packages within the time frame of the project, so the indicator of insurance coverage is not relevant.

2.2 Deviations from the planned Outputs and Activities

In this project all planned outputs and activities did take place.

2.3 Achievement of NCF indicators

NCF indicators	Results
1. Number of beneficiaries reached (women/men)	2020 (1434 f/586 m) ³
2. Number of people with increased resilience to climate change (women/men)	2020 (1434 f/586 m)
3. CO2e emissions reductions (actual at project completion and expected during the lifetime of the project's mitigation investments)	Not applicable
4. Number of green business concepts tested	Not applicable
5. Number of new decent jobs created (disaggregated by number of permanent (women/men) and seasonal (women and men))	Not likely to be significant, see fn 1
6. Number of people with improved livelihoods/income-generating possibilities (women/men)	Not applicable
7. Number of multi-stakeholder partnerships developed	Three
8. Amount of funds leveraged (actual project co-financing and possible secured future investments for scaling-up/replication)	€415 493

3. CLIMATE CHANGE

135 households have built climate resilient homes with support from the project. With an average household size (based on our survey) of 4.5 people, this amounts to 608 people. 72 percent of these households are female-headed. Assuming an equal number of males and female household members, 304 males and 304 females are direct beneficiaries from the housing construction support. In addition, WU staff, local builders and other stakeholders have received training in how to build and retrofit homes for climate resilience. In total, 1412 persons, of which 1130 females received training. This means that 2020 persons are direct beneficiaries of our project, having received financial and technical support, training and built competence on climate adaptation.

The main, long term impact of this project on climate change adaptation, is relayed through increased competence of the Women's Union and through the investigation of necessary and sufficient incentives for poor and near-poor households to invest in climate resilient housing. As a result of the project, competence on climate resilient

³ 608 people obtained storm-resilient housing, of which 304 assumed female. 1412 people received training, of which 1130 female.

housing has spread through the WU system in Da Nang, and WU in other cities are interested in copying what Da Nang has done (see section 5.4).

The second main channel of impact is the results generated on the necessary and sufficient incentives for poor and near-poor households to invest in climate resilient housing. We have found that free technical assistance and subsidized loans is not enough. A small grant, on the other hand, seems to be enough for many households to act. One way to finance such a grant could be to reallocate funds from relief funds. This is valuable information for Vietnam as it strives to protect its population better against typhoons and storms, increasing climate resilience in the process.

3.1 The characteristics of climate resilient housing in Da Nang

In the 135 houses built under the NCF project, the most common resilience-enhanced element is the construction of a 'safe' or 'strong' room inside the house regardless of different forms and sizes of individual houses. This 'safe' room could be small or large, and in normal situations it could be either bedroom, kitchen, storage, toilet or study room dependent on the need and financial capacity of each household. This 'safe' room was structurally created by a closed reinforced-concrete (RC) skeleton and a RC slab to protect inhabitants and household items in severe storms.

The ring beams at the foundation and at the roof level, and the reinforced concrete (RC) pillars are all important for the overall stability of the house. When it comes to the roof, an RC roof is considered to be very resilient, whereas a corrugated steel sheet roof or a clay tile roof is vulnerable to strong winds unless combined with roof bracings.

Figure 1 Climate resilient housing before and after re-enforcement



Panel a: Example of vulnerable home owned by household supported by project. Photo: Sofie Skjeflo. Panel b: Example of interior of climate resilient home supported by project. Safe room behind tv, and ceiling/roof with bracings. Photo Tran Tuan Anh. Panel c: Example of exterior of climate resilient home supported by project. RC pillars, ring beam at foundation level, and RC roof. Photo Tran Tuan Anh.

4. DEVELOPMENT IMPACTS AND CROSS-CUTTING ISSUES

The project has generated positive impacts in various sectors of Da Nang. The project not only provides safer houses for poor and near poor families, but also improves the capacity of local stakeholders, especially the Women's Union staff at multiple levels, in operating and managing climate-resilient housing programs through financial and technical support. We also expect longer term positive impacts on livelihoods as poor and near-poor households avoid future typhoon damage to their house and assets. We expect this to enable households to increase their investment in physical and human capital.

One home owner who received support from the project said "Thanks to the project (NCF project), my family feel more secure in this house. I am now not worried about how and where to evacuate in rainy and stormy seasons. My children have a better place to sleep and study without rainwater leaking from the top as before. After having this house, I and my husband put more focus on increasing family's income to cover daily living expenses plus an amount of monthly repayment."

5. ASSESSMENT OF THE RESULTS AND IMPACTS OF THE PROJECT

5.1 Relevance

Housing is one of the four priority areas of Da Nang City to build resilience to future climate risk, as mentioned in the City Resilience Strategy released in November 2016⁴. Housing is a critical issue due to Da Nang's exposure to the sea and the record of critical damage of housing in recent typhoons. The city has called for external support from international organisations and the private sector to invest in the housing sector to gradually build a resilient housing system. As a result, housing projects have been implemented in Da Nang with funding from the Save the Children UK (in 2007, reconstruction after Typhoon Xangsane), the Rockefeller Foundation (2011-2014), the ADB (2015-2017), the NCF (2016-2018), and some local enterprises through the city's *Fund for the Poor* channel.

There has been an official Announcement released by the Da Nang City People's Committee in July 2017⁵ in which the Chairman has appreciated the resilient housing projects undertaken by the Women's Union. He has strongly recommended all the city's departments and civil societies involved in the present and future housing programs of the city to apply resilient housing models initiated by Women's Union wherever and whenever possible. In the city's Poverty Reduction Plan for the period of 2016-2020, mobilising all possible resources to support low-income housing improvement through

⁴ The Da Nang City Resilience Strategy can be accessed at https://www.100resilientcities.org/wp-content/uploads/2017/07/Da-Nang-Resilience-Strategy_2.pdf

⁵ The No. of this Announcement is 234/TB-VP released on 13 July 2017 to announce the conclusion of Mr. Huynh Duc Tho, the Chairman of Da Nang City People's Committee, at the political meeting to assess the implementation outcomes after 5 years executing the Decree No. 56/2012/NĐ-CP and the cross-cutting meeting between City People's Committee and Women's Union. It is enclosed to this report.

forms of new construction and retrofitting is one of the key targets to reduce the number of poor and near poor households.

There are several other housing programs, e.g. through the Vietnam Fatherland Front channel, to provide grants for poor households to improve their housing. However, such programs often lack the requirement of incorporating safety-related principles in construction. As reported by local officials through group discussions, the NCF project has contributed meaningful knowledge to current and future local housing programs in guiding how to apply safety-related principles in local common construction practices.

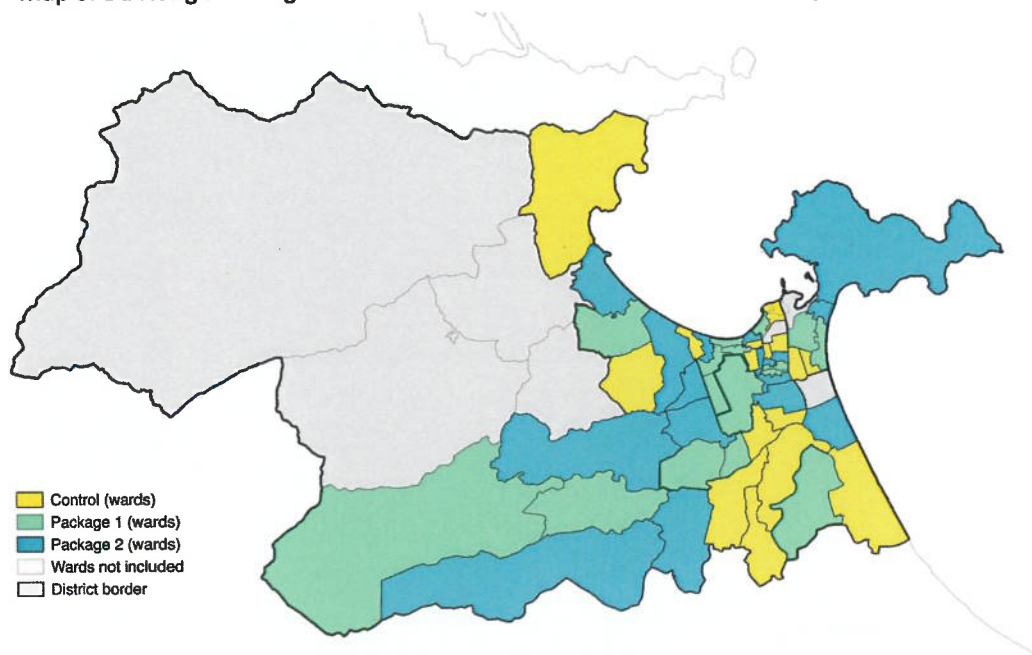
There have been several research projects, such as the project *feasibility study for the replication of storm resistant housing in Da Nang* funded by the Asian Development Bank (ADB), to examine the potentials for scaling up the models of storm resilient housing in Da Nang. This project found much greater demand for resilient housing improvement than the quantity reported in the city poverty reduction Plan for 2016-2020. It shows a strong relevance of the NCF project in addressing one of the prioritised and practical demands of the city.

5.2 Effectiveness

The overall objective, which is to contribute to increasing penetration of climate resilient housing in Vietnam, has been achieved thanks to the presence of 135 safe houses already built on site, achieving 135% of the initial objective of the project (to build at least 100 houses). The total credit and grant funding disbursed to the near poor and poor households is €139 000 (3.37 billion VND), of which, grant from NCF is €84 000 (2.04 billion VND) and credit from WU is €55 000 (1.33 billion VND).

The first objective of the project – to develop practical and sustainable incentives for private and public sector actors to build climate resilient housing for low-income households – has been achieved by the identification of a suitable package of incentives consisting of a small grant beside a loan and technical support. We tested three incentive packages in different wards of Da Nang (see Figure 2) : Package 1 consisted of a loan plus technical assistance, package 2 had one third of the loan converted to a grant, plus technical assistance, and package 3 consisted of a grant plus technical assistance. Our test of the incentive packages shows that providing a small grant in addition to a loan and technical support, more than doubles the acceptance of the incentive package for near-poor households. A loan and technical support only, on the other hand, achieved a low take-up, and mostly among better off households. This means that rolling out the existing revolving fund scheme of the WU will not be sufficient to reach poor and near-poor households. On the other hand, the city of Da Nang spent 14 billion VND after Typhoon Nari in 2013 to rebuild and repair damaged housing, and 32 billion VND after Xansane in 2006. Spending funds on disaster preparedness rather than repairs could be financially beneficial at the city level as well as for the individual household.

Figure 2 Map of Da Nang showing which wards were offered different incentive packages



The second objective – to build capacity of Da Nang Women’s Union as a catalyst for climate resilient housing – has been achieved by the completion of trainings, workshops, forums and discussions at multiple levels where WU staffs were the main participating groups. Namely, 18 trainings at multiple levels, 2 citywide forums and 2 multi-stakeholder workshops to raise public awareness on climate resilient housing and disseminate knowledge on storm resistant housing applied by WU were conducted throughout the project timeline with the total number of 1482 participants. of which 1188 came from the WU system and the rest were local builders and household members from the households that received support for house construction or retrofitting.

Another positive impact is the increased awareness and capacity of local staff (WU mainly) and community members (local builders, quarter heads/vice-heads, and vulnerable households) who have joined trainings and workshops. The key point here is their improved understanding of which structural elements of the house could ensure the house’s storm resilience and, more importantly, how to transfer or build such resilience-enhanced elements in practical situations.

5.3 Efficiency

An important paper by Tuan et al. (2015), which constituted part of the background for the project, estimated that the internal return to investing in climate-resilient housing in Danang was almost 15% per year. The calculation is conservative in the sense that historical typhoon frequency was assumed to continue. If one assumes that climate change doubles the frequency of severe typhoons (category 12, equal in strength to the typhoon Xangsane in 2006) the internal return increases to 20%.

This means that the return to inducing a household to undertake investment in climate resilience is 15-20% p.a. The total sum invested in climate resilient housing as a result of the project is €440 000 (10.6 billion VND)⁶. Taking 15% as a conservative estimate of the return we conclude that the annual average return to the inputs of the project is €66 000.

We may compare this return to the funding by NCF. The total funding from NCF for this project amounts to €498,450. €66,000 relative to €498,450 is 13%. 13% p.a. is our best estimate of the return on the NCF fund. The intangible return in the form of knowledge generation and dissemination is additional. The intangible return may be more important than the tangible return to the households.

5.4 Impact

An important impact of the project is the households' and the local WU's improved understanding of climate resilient housing. One lesson is that climate resilient elements can easily be implemented by local builders with available materials, and at a low additional cost.

The project has shown that support in the form of a small grant beside other incentives (technical support and a subsidized loan) can be a sufficient incentive for significantly inducing further investments in storm-resilient housing among the near-poor. A small amount of grant, covering about 5-10% of the total construction cost on average, significantly increases the investment of near poor households in incorporating resilient construction methods for their rebuilt or retrofitted house. This group of households does not qualify for support from most housing programmes but are highly vulnerable to typhoons and storms. The large impact of providing a small grant for near-poor households that has been demonstrated through this project is an important insight for the WU and others responsible for implementing housing programs in Vietnam.

The 135 houses built or retrofitted under the project are a tangible product that enhances the awareness of local builders and is likely to gradually change their construction practice towards integration of resilience. The presence of these houses will be a good practical demonstration model in the involved neighbourhood/community to re-emphasize the importance of safe and resilient housing in enforcing low-income family stability and development.

The project has also produced several technical manuals, pamphlets and an instructional film that are another tangible product that enhances the awareness of local builders. An example is in Figure 3.

⁶ This amount includes contribution by homeowners (€300 000), loan by WU (€55 000), NDF grant (€84 000). It is the amount recorded by WU for actual investment and excludes funding for technical assistance, training and workshops, and expected default costs of loans.

Figure 3 Example of information material presented to households as part of the information incentives.

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



Source: project partners.

Based on the results and experiences learnt from the project, ISET has replicated a similar model to this project in Quang Tri Province, about 160 km from Da Nang northernly, to support poor and near poor households there in improving their existing unsafe houses. Da Nang WU was also invited to Quang Tri Province to share their experiences and lessons learnt from this project implementation. The technical manuals of storm-resilient housing were also shared with the Quang Tri actors to support them in planning, designing and building climate-resilient houses.

Experiences and lessons learnt from the project are also shared with the current UNDP housing program (through Mr Tran Tuan Anh, a member of the project team from ISET) currently supporting the construction of 4,000 houses for coastal vulnerable communities in Vietnam. Key technical principles of storm- and flood-resilient housing, opportunities and challenges in implementing housing microfinance for resilience purposes, and ways of addressing local barriers to transferring resilient housing concepts into practice were the main contents that Mr Tuan Anh shared at the technical training sessions organised at their project sites.

One particular lesson from the project relates to the risk of, and handling of defaults on loans. When carrying out a microcredit program defaults are to be expected. In a recent

paper⁷ the average default rate was 6.6%. A current, updated dataset has a default rate is 7.4%. Some other datasets have lower default rates, others have higher. To complicate things further there are different definitions of default depending on time of default, extent of default (in full or in part) etc.

In previous microcredit programs in Vietnam that were run by the WU, a default rate of close to zero was recorded. One reason for this success is that households were individually selected and monitored, using substantial administrative resources. However, our task was to test new incentive mechanisms, and therefore new loan programs, aimed at a wider population than the carefully selected and vetted households that have usually been accepted by the WU in their loan programmes. We wished to investigate how new forms of the revolving loan program for climate resilient housing could be sustainably rolled out, and we therefore required a less costly approach to selecting households. This also involved a higher risk of loan default for the WU, and we agreed to keep reserve funds for defaults of up to 10 percent of loan repayments. This approach is in line with e.g. the discussions of how to innovate microfinance from the 2017 Global Symposium on Microfinance, where it is argued that “In ‘testing’ new business models, MFIs should not be overly concerned on default rates, especially in the first few years of operations. Creating the right business model is more important.”⁸

A 10 percent default rate is higher than WU’s previous experience, but given that the purpose of the project was to test new ways of operating the program, it was seen by both the WU and the other project partners as a feasible outcome. Since, however, the actual default rate is not known at the time of ending the project it was agreed that funds set aside to cover potential defaults (based on the amount of loans paid out from the revolving fund) would be transferred to the WU revolving fund. This arrangement was chosen to ensure that WU was fully motivated to avoid defaults. In the end it turned out the default rate was zero even in our program, and the revolving fund was increased accordingly.

Experiences and lessons learnt from the project have been also shared at national and international meetings and conferences through the participation of the project team members in such events.

5.5 Sustainability

This project will not end after the completion of the project timeframe. First, 135 houses built by the project will bring long term benefits to beneficiary households in the coming years, particularly when Da Nang faces the next storms. We expect that damage and loss will be reduced and households’ savings and household items can be protected, and hope to be able to collect another round of survey data of the same households to demonstrate this impact.

⁷ Strøm, R.Ø., B D’Espallier and R. Mersland, 2014. Female leadership, performance, and governance in microfinance institutions. *Journal of Banking and Finance*, 42, 60-75.

⁸ <http://pubdocs.worldbank.org/en/332301505318076916/GSM2017-Synthesis-report-draft-August-9th-2017-Final.pdf>

Local staff and community members who have been trained through the project will be a valuable resource locally available for future resilient housing programs/projects done in Da Nang. Their perception and knowledge captured from the project will persist for many years.

The revolving loan fund used as the co-finance source of WU for this project will be repaid by the participating households and then added to the Women Development Support Fund managed by Da Nang WU. This funding source will be used for supporting other vulnerable households of the city⁹ in improving their unsafe houses by a similar approach and method as applied by this project.

Current and future housing programs/projects done under the city- and/or externally mobilised budgets will reference to this project and apply experiences and lessons derived from this project (e.g. skills of housing microfinance operation, technical principles for climate-resilient housing design and construction) wherever and whenever possible, as recommended by the city leaders in their promulgated official announcements and statements (see section 5.1).

The printed technical manuals and communication leaflets, with key lessons/messages from the project, have been delivered to and applied by relevant city departments, agencies and organisations (e.g. Department of Construction, Department of Labour, Invalids and Social Affairs, or Vietnam Fatherland Front Committee) who currently manage or engage in housing programs of the city.

6. POTENTIAL FOR SCALING UP AND FOLLOW-UP INVESTMENTS

The project has a high likelihood to be scaled up in the next plans of WU and in response to the city development goals, although there have not been any written commitments yet. However, judging from meetings and workshops where the city leaders were invited, the model developed by the project is viewed as appropriate to the Da Nang context and the city tries to mobilise different sources to continue this model to bring benefit to other vulnerable households who have not been selected as beneficiaries for this project.

The dissemination workshop organised in October 2018 saw the participation of the representative from the Eptisa organisation that is undertaking a project on climate resilient housing in Vietnam funded by the Asian Development Bank¹⁰. The model developed by the NCF project is quite relevant to what Eptisa plans to produce and, potentially, some of the findings from the NCF project can be referenced or replicated in their future project activities.

⁹ The actual demand and the estimated number of unsafe houses necessitated a technical improvement in Da Nang is relatively high, nearly 30,000 houses, as identified by the ADB-funded feasibility study research project.

¹⁰ The source of this project can be found at <https://www.adb.org/projects/49153-001/main#project-pds> For more about Eptisa see <http://www.eptisa.com/en/>

7. LESSONS LEARNED

The key lessons learnt include:

- Appropriate incentives can significantly motivate low income households to invest in climate resilient housing
- In the Da Nang city context, a small grant can be a good ‘trigger’ to motivate near poor households who are usually unable to access any financial support, to invest in climate resilient housing
- Technical support through the delivery of free design packages can be an effective way to transfer resilient housing concepts and related technical principles into construction practice. This applies in particular to the retrofitted houses, where the physical conditions of the existing houses are diverse and demand a comprehensive understanding by an architect/designer, before deciding which methods of retrofitting are appropriate. However, the technical support by itself is not a sufficient incentive to invest.
- The engagement of a local implementing partner such as the WU is crucial to ensure the project implementation at the local level in an effective and timely manner.

8. FINANCIAL SUMMARY

Table 1. Project financing per partner

	Financing, EUR						
	NCF	Grantee	HCE	ISET	WU	Homeowners	Total
Expenditures, EUR							
Grantee (Vista Analyse)	261862	35222					
HCE	44631		35821				
ISET	61658			9091			
WU	130299				62312		
Repayment to WU by house owners					-30546		
Own contribution by home owners incl repayment						305024	
Total	498450	35222	35821	9091	31766	305024	915365

9. CONCLUSIONS AND RECOMMENDATIONS

Our project has successfully tested three incentive schemes for motivating poor and near-poor households in Da Nang to invest in climate resilient housing. With support from the project, 135 climate resilient homes were built or retrofitted.

We recommend that the local and central government in Vietnam base their policies on the conclusions of the project: A small grant seems to be necessary and sufficient to motivate a large number of poor- and near-poor to invest in climate resilient housing. The grant could be as low as 5-10 per cent of the cost of a home, but it should be larger for poor households than for near-poor.

In future work it will be important to re-examine these conclusions using a larger sample of households. A larger sample will allow for testing of more hypotheses and more incentive packages, and we will be able to make more robust inferences about which incentives are necessary and sufficient. It will also be necessary to revisit the households of the RCT in Da Nang in 2-5 years' time. At that time, we can measure the longer term impacts of investing in climate resilient housing on outcomes such as household income and various measures of overall household resilience.

Annex 1 Project completion fact sheet

Project Name:	Implementing Incentives for Climate Resilient Housing Among the Urban Poor in Vietnam		
Country/ Region:	Vietnam	Financing:	
		EUR	%
Nordic Partner:	Vista Analyse	35222	3.8
Local Partner:	Institute for Social and environmental Transition (ISET)	9091	1.0
Local Partner	Hue College of Economics (HCE)	35821	3.9
Local Partner	Women's Union of Da Nang (WU)	31766	3.5
Homeowners	Homeowners	305024	33.3
	NCF grant disbursed	498450	54.5
	Total	915365	100.00
Classification:	Adaptation		
Project cycle:	Contracted:15.04.2016 Original Closing Date: 04.10.2018 Actual Closing Date: 31.12.2018		
Project description:			
Key results:	NCF indicators	Results	
	1. Number of beneficiaries reached (women/men)	2020 (1434 f/586 m) ¹¹	
	2. Number of people with increased resilience to climate change (women/men)	2020 (1434 f/586 m)	
	3. CO ₂ e emissions reductions (actual at project completion and expected during the lifetime of the project's mitigation investments)	Not applicable	
	4. Number of green business concepts tested	Not applicable	
	5. Number of new decent jobs created (disaggregated by number of permanent (women/men) and seasonal (women and men))	Not likely to be significant	

¹¹ 608 people obtained storm-resilient housing, of which 304 assumed female. 1412 people received training, of which 1130 female.

	6. Number of people with improved livelihoods/income-generating possibilities (women/men)	Not applicable	
	7. Number of multi-stakeholder partnerships developed	Three	
	8. Amount of funds leveraged (actual project co-financing and secured future investments for scaling-up/replication)	€415 493	
Project performance:	Main Expected Outputs	Achieved	End-of-project status
	1. Revised workplan and coordination activities established	Yes	Completed
	2. Incentive mechanism designed and described. Implementation plan	Yes	Completed
	3. Incentive mechanism implemented and 100 homes built or upgraded	Yes	135% of target for homes completed
	4. Impacts of incentive mechanisms documented	Yes	Completed
	5. Synthesis of lessons learnt are disseminated	Yes	Completed
Final beneficiaries:	Homeowners who obtain climate resilient housing; recipients of training; WU staff and organisation		
Climate change impacts:	135 households have retrofitted or built climate resilient homes, ensuring a safe home for 608 people. 1482 people have increased awareness and motivation for climate resilient housing through trainings of the project. The project has left lasting increased competence of incentives needed to motivate poor and near-poor households for climate-resilient housing.		
Development impacts:	1. Safer and more climate resilient houses for poor and near poor families. 2. Improved capacity of WU staff in operating and managing climate-resilient housing program.		
Innovation, technology and learning:	1. Local builders are trained in building techniques for climate-resilient housing. 2. Local builders have become familiar with costs and key requirements of climate resilient housing, and misperceptions have been removed. 3. Significant training has taken place towards almost 1500 beneficiaries.		
Partnership:	Partnership Vista Analyse – HCE; partnership Vista Analyse – ISET; partnership Vista Analyse - WU		
Sustainability and replicability:	1. Long term benefits to 135 families that live in climate resilient housing. 2. Increased knowledge and competence among recipients of training. 3. Increased knowledge and competence among local builder and architects. 4. Revolving fund preserved and available for future housing investment. 5. Impetus to current and future housing programs in Da Nang and other cities. 6. Printed leaflets and manuals, and a instruction film, have been delivered and applied by relevant city departments, agencies and organisations. 7. Competence gained and lessons learnt in the project is built into development programs, e.g., by ADB and UNDP.		
Lessons learned:	1. Suitable incentives can motivate low-income households. 2. The optimal form the incentive is context-specific. 3. In Da Nang a small grant of 5-10 per cent of housing cost can be a good trigger to motivate low income households to demand climate-resilient housing. 4. Technical support and free design packages improve the climate resilience of housing, but are not in high demand on its own. 5. A local partner such as WU with comprehensive presence in the field is necessary to implement a project like this effectively and timely. 6. Training, communication and dissemination is necessary for successful results.		

Logical Framework Matrix

Table 1 Logical Framework Matrix

Narrative Summary	Objectively Verifiable Indicators (OVIs)	Means of Verification (MOVs)	External Factors (Assumptions)
<p>Overall Objective To contribute to increasing penetration of climate resilient housing in Vietnam that can withstand typhoons, storms and floods.</p>	<p>Local actors autonomously building climate resilient housing as a result of incentives introduced by the project</p>	<p>Survey of housing stock Survey of builders Survey of financial institutions Census data</p>	<p>This is a long term objective that will not be accomplished over the lifetime of the project. For measures of the project contribution to this objective, see below.</p>
<p>Purpose 1) To develop practical and sustainable incentives for private and public sector actors in Da Nang city to build climate resilient housing for the benefit of low-income households; 2) To build the capacity of Da Nang Women's Union as a catalyst for climate resilient housing.</p>	<p>Adoption of new incentives by local government, financial, construction or civil society agencies to support storm-resilient housing development. Number of housing units upgraded or built through new incentive mechanisms administered by WU. WU influence in promoting adoption of incentives by other actors.</p>	<p>Relevant local private / public sector actors develop funding proposals or commercial mechanisms to extend application of project incentives. Project records Interaction and meetings between WU and government and private actors.</p>	<p>Key actors become aware of new incentives. Key actors can identify self-interest in implementing the incentives. Economic analysis influences actor decision-making. WU staff turnover is low WU influence in catalysing climate resilient housing can be distinguished from other related factors.</p>
<p>Output (Results) 1. Revised work-plan and coordination mechanisms between partners agreed, and detailed research on low-income housing</p>	<p>1. Updated work-plan, schedule, reporting and coordination mechanisms finalized between all partners. 2. Descriptions of different low-income housing segments, key actors</p>	<p>Project documentation</p>	<p>Construction cost inflation is low.</p>

<p>segments completed (related to Milestone 1 in the budget)</p> <p>2. Innovative mechanisms (hard: financing; soft: information and technical assistance) for different segments of low-income housing market are designed and described in statistical terms. Implementation plan incentives for first 70 houses (related to Milestone 2 in the budget).</p> <p>3. Innovative incentive mechanisms are implemented in the field, and climate resilient 100 homes are built or upgraded in two phases by households and local builders. Implementation plan for incentives for the last 30 homes is drawn up. (related to Milestones 3 and 4 in the budget)</p> <p>4. The impacts of the incentive mechanisms for different actors in the housing sector are documented through analysis of pilot experience. Business plan for replication and scaling up (related to Milestones 5 and 6 in the budget)</p> <p>5. Synthesis of lessons from incentive design, business plan and economic analysis of performance is shared in seminars and through direct</p>	<p>involved in their construction, and identification of main hurdles for investment in climate resilient housing.</p> <p>3. Specific incentive mechanisms designed for different low-income housing segments with engagement of local stakeholders.</p> <p>3. 100 housing units upgraded or built using all incentive mechanisms.</p> <p>4. Survivability of new or upgraded housing in a severe storm.</p> <p>5. Report on economic analysis of incentive mechanism performance, benefits and incidence.</p> <p>6. At least 2 workshops / meetings to share project results</p> <p>7. Number of participants from different stakeholder groups participating in project workshops / meetings.</p> <p>At least 25% female-headed houses newly constructed or retrofitted</p> <p>At least 25% female participants joining workshops/meetings/trainings</p> <p>Number of lost working days reduced</p> <p>Number of lost school days of children reduced</p>	<p>Inspection of units following storm</p> <p>Project documentation</p> <p>Evaluation reports</p>	<p>Cost effective construction techniques are available and familiar to contractors.</p> <p>At least one severe storm occurs over life of project.</p> <p>Economic analysis is credible and convincing</p> <p>Project is able to engage with key stakeholders effectively through multiple communication channels</p>
---	---	---	---

<p>consultation with public and private housing sector actors to promote replication and sustainability of incentives (related to Milestone 7 in the budget)</p>	<p>Activities</p> <ol style="list-style-type: none"> Detailed research on low-income housing market segments, including collection of basic baseline data (including on relevant segments of study). Consultation with housing sector actors, including banking and insurance, local government, civil society, construction and architect actors Inception workshop, detailed revised work-plan and inception report (Milestone 1) Identify and design potential incentive mechanisms Develop detailed pilot implementation plans, including design of evaluation, monitoring and data collection Report on incentive mechanisms and plan for evaluation in field. Implementation plan for incentives for first 70 houses (Milestone 2) 	<p>Number of working days for local builders</p> <p>8. Number of jobs/working days for local building teams. Coverage of potential insurers. Number of jobs/working days for technical assistants</p>	<ol style="list-style-type: none"> Revised work-plan Inception report including additional housing sector research Inception workshop Incentives for different low income housing sector components designed and described Monitoring and evaluation procedures identified and described Implementation monitoring reports prepared Performance data collected and analysed Workshop for analysis of results Analytical report in English produced Results summarized for dissemination to public and private sector actors Dissemination workshop Publications and communications materials for different audiences (incl. two local policy briefs) Dual language final report 	<p>Written documentation from workshops, material for workshops, published reports and journal articles.</p>	<p>Mobilization and continuity of local partner organizations and key project staff</p>
--	---	---	--	--	---

<p>7. Implement incentive mechanisms in field for construction or retrofitting of 100 houses, in 2 tranches, each to be accompanied by a monitoring report. Implementation plan for incentives for final 30 houses (Milestones 3 and 4)</p> <p>8. Implementation review workshop</p> <p>9. Monitoring data collection and analysis</p> <p>10. Workshop to discuss preliminary results (Milestone 5)</p> <p>11. Refine analysis and results, produce report (Milestone 7)</p> <p>12. Prepare communications materials for public and private actors</p> <p>13. Dissemination workshop and other dissemination activities</p> <p>14. Publications (one dual language final report, two working papers, two local policy briefs) and two national presentations. Publications and dissemination will be targeted local, regional and national actors, as well as the international adaptation and micro-credit community.</p> <p>15. Project reporting (Milestone 7)</p> <p>Inputs</p> <p>1. Skilled researchers</p>	<p>14. Two working papers intended for international journal publication</p>	
	<p>Accomplishment of results above will demonstrate successful application of inputs.</p>	<p>Private sources of finance for housing sector will be mobilized through incentive mechanisms</p>

Annex 3 Pictures

See body text.

Annex 4

Other supplementary deliverables/documentation

1. *Announcement from Da Nang City People's Committee*
 2. *Paper Randomized control trial*
 3. *Paper Policy implications*
 4. *Manual for builders*
 5. *Manual for households*
 6. *Manual for staff*
 7. *Leaflet*
-