FRANCESCA BOCCHINI One typhoon after another: Viet Nam in Fall 2013

Climate change and natural disasters in the Central Region

ith approximately half of its population being settled in low-elevation coastal zones, Viet Nam is considered one of the most vulnerable countries in the world in relation to climate change (ADB, 2012) and sudden-onset disasters. Every year the Vietnamese coastal areas suffer from the impact of four to six storms on average (Pilarczyk and Si Nuoi, 2009). Both the intensity and frequency of natural disasters have increased in the past few years, provoking

9,500 deaths and missing, along with an economic loss of 1.5% of the GDP from 2001-2010 (National Strategy on Climate Change, 2011).

In the fall of 2013 the Viet Nam Central Region was hit by three typhoons within five weeks. On September 30, typhoon Wutip hit the Central Region bringing heavy rains, flash floods and strong winds. Only two weeks after, it was the turn of typhoon Nari, which exacerbated the already critical living conditions of local communities in the central coastal areas and provoked extensive flooding. Following the disastrous passage of typhoon Haiyan in the Philippines on November 8, 2013, the Vietnamese government implemented emergency evacuation plans. On its way to Viet Nam, the super typhoon Haiyan reduced its intensity and eventually reached the coastal northeastern province of Quang Ninh bringing heavy rains and winds before moving to China as a tropical depression (IFRC, 2013b). The typhoons had far-reaching consequences, provoking deaths and wounded, but also serious damages to livelihoods and economic resources, increasing local people's vulnerability. Moreover, the compelling proximity of natural disasters highly affected people's preparedness and recovery.

Evidences show that internal migration from rural to urban areas (UNFPA, 2009), but also from rural to rural areas, are progressively increasing; highlighting the relationship between the impoverishment of people in highly affected areas and displacement. Environmental disasters seem to boost short-term migration during the dry season, conceived as a common coping strategy to improve household living standards (De Brauw, 2010). 2013 typhoons could therefore contribute in triggering longer-term consequences on the migration patterns of the affected populations.

To respond to climate change the Viet Nam Government and international and national NGOs have proposed and undertaken several structural and non-structural measures in the framework of the National Strategy for Natural Disaster Prevention, Response and Mitigation (2007-2020) and the National Strategy for Climate Change (2011) in order to empower local communities in the event of natural disasters.

This paper aims to assess the repercussions of the fall 2013 natural disasters on the lives of locals in the Central Region and questions the nexus between environmental

catastrophes and the displacement of persons. It will firstly overview of the exposure of the Central Region in relation to climate change focusing on floods and coastal retreat. It will secondly describe the impact of the three typhoons (Wutip, Nari and Haiyan) in the Central Region and then analyze the implementation of evacuation, as a short-term forced displacement, and of relief programs. It will thirdly discuss the long-run effects of natural disasters on internal migration patterns and social structures, particularly analyzing the possible connection between temporary migration and the last typhoon season. It will fourthly assess the efficacy of the governmental policies in response to the 2013 typhoons and local capacity building programs as a long-term response for improving mitigation and resilience.

1. THE CENTRAL REGION: AN EXTREMELY VULNERABLE COAST

The Central Region is highly prone to water or water-related disasters (Sternin, 2003). It is indeed exposed to both typhoons and monsoons. The typhoon season starts in June and ends in November, whereas the monsoons cause torrential rains from September to December (Pilarczyk and Si Nuoi, 2009). Despite the majority of the territory being mountainous and hilly (85% in the Quang Binh province), the high fertility of the coastal areas in the river deltas makes it the most economically dynamic (UNDP, 2012) and densely populated (ADB, 2012). This inevitably means that when a natural disaster hits the region, the livelihood of a large amount of people is affected requiring not only the deployment of prompt assistance, but also effective prevention and rehabilitation mechanisms to mitigate the disaster effects.

From a topographic perspective, low-lying plains and short rivers characterize the coasts of the Central Region. During the rainy season, water streams overflow creating flash floods (Pilarczyk and Nuoi, 2009). These phenomena are hard to forecast and therefore require an immediate response. The flooding often provokes landslides and can also lead to slow-onset disasters, such as salinity intrusion, which severely affects the productivity of agricultural lands and irrigation systems for years (Pilarczyk and Nuoi, 2009).

Furthermore, the Central Region suffers from the effects of climate change, such as coastal erosion, which has been recorded in 263 sites distributed over all the provinces (Huy Tien, 2005). The main reasons behind erosion are: the composition of the coast, the vast majority of the eroded sites (93.7%) being composed of sand, the effects of strong winds and waves in the event of natural disasters, such as typhoons. Another contributing factor to erosion is the low-level of river sedimentation (covering 5,200.4 ha in 2005), which does not compensate for coastal erosion (covering 8,839 ha in 2005) (Huy Tien, 2005), and has been reduced by the construction of dams, causing a retreat of up to 1 kilometer in 20 years (Pilarczyk and Nuoi, 2009).

Despite the existence of sea-dykes and tree plantation programs, coastal erosion has not halted due to the long-term impact of deforestation practices and river diversion (Gegar Prasetya, FAO). In October 2013 the Viet Nam Administration of Seas and Islands issued a report concerning the status of coastal erosion in the country corroborating this finding: "121 areas where are built dykes and plant trees against waves [..] still suffer from erosion. In particular, Thanh Hoa has 18 km of coastline eroded at a rate of 15-30 m per year. Coastal erosion is breaking dykes, causing flooding, saltwater intrusion in the area" (Viet Nam Administration of Seas and Islands, October 28, 2013).

It is estimated that Viet Nam will be one of the main victims of sea-level rise, which consequently will bring an aggravation of coastal erosion and salt penetration. According to the Asia Development Bank (2012), "Given a 1-meter sea-level rise, Viet Nam would be the most affected developing country in terms of population (10.8%), GDP (10 percentage point reduction), and wetlands inundated (28%)".

As aforementioned, Viet Nam is critically prone to sudden-onset disasters, namely typhoons and tropical storms. Studies assert that the number of typhoons hitting Viet Nam has been progressively increasing: 117 occurred between 1901 and 1930, 134 between 1931 and 1960, 171 between 1961 and 1990 (Huy Tien, 2005). In in the 1991-2000 decade alone, South East Asia was hit by 131 typhoons (NCAP, Climate Change and Climate Variability), which seems to confirm the general increase of violent natural disasters in the region. According to the 2008 Community-Based Disaster Risk Management Report, Viet Nam has experienced "an upsurge and intensity of these natural disasters". The Southern Region Hydro-Meteorological Center in Ho Chi Minh City endorses this, affirming, "Typhoons impacting Viet Nam are increasing in frequency, magnitude, intensity as well as unpredictability in terms of the track that the typhoons follow" (Dun, 2009).





Source: Author, 2014.

Damages to properties and lands, as well as disaster-related deaths have been progressively increasing. This evidence focuses on the rising vulnerability of local communities rather than the actual number of catastrophes, which does not prove per se the adaptation and mitigation capacity of the region. This finding has been confirmed by a study of the UNDP highlighting that in Quang Binh, over the past fourteen years, natural disasters had an increased impact on the lives of locals, housing and agriculture (UNDP, 2012).



Figure 2. Damages caused by natural disasters in Viet Nam 1996-2006.

Source: Author, 2014. Data from Community Based Disaster Risk Management (CBDRM), Joint Advocacy Networking Initiative in Vietnam (JANI).

2009 and 2010 presented disastrous records in the history of Viet Nam. In 2009, the passage of typhoon Ketsana killed 179 people and injured 1,140 (IFRC, 2010), destroyed 20,000 houses and partially damaged 475,000 houses (Australian Red Cross Website), with devastating repercussions on rice production. In the same year, typhoon Mirinae killed 7 people and inflicted an economic damage of \$21 million (Di Gregorio, 2013). In 2010, the Central Region was victim of what locals described as "the worst disaster in the history of this province in the last 60 years" (Disaster Management Working Group, 2010), when severe floods affected half of the population in Quang Binh and killed 45 people.

In conclusion, the Central Region is highly vulnerable to both climate change and violent natural calamities. While the effects of slow-onset disasters, such as coastal erosion and salinization, can be more easily estimated and have proven to be worsening in a temporal perspective, it is harder to find a recognizable and progressive pattern for sudden-onset disasters and to draw conclusions about their future trends. Nonetheless, an increased frequency of natural disasters has been recognized and their impact seems to be increasingly dramatic as years go by.

2. ONE TYPHOON AFTER ANOTHER: A DISASTROUS FALL FOR THE CENTRAL REGION

Figure 3. Timeline of natural disasters in the fall of 2013



In accordance with the National Center for Hydro-Meteorological Forecasting, 2013 has marked a new record for Viet Nam in terms of number of natural disasters. Le Thanh Hai, the Deputy Director of the Center, alleged, "The maximum number of storms and tropical depressions recorded in a single year in Vietnam stood at 16 in 1964. This year's 13 storms and 6 tropical depressions striking Vietnam have ensured a new record" (Asian Pacific Defence Forum, 2013).

On September 30, Typhoon Wutip (also referred to as the 10th storm) struck the Central coastal provinces between Thanh Hoa and Thua Thien-Hue as a Category 1 typhoon resulting in 11 deaths, 5 missing and 214 injured due to landfall, strong winds, torrential rains and consequent uncontrolled floods. Additionally, 212,196 houses were damaged or unroofed (IFRC, 2013a). Damages to crop production have also been extensive: 18,000 ha of rice, corn and cassava have been flooded (Thanh Nien News, 2013a); and land fertility was affected by salt intrusion (UN Viet Nam, 2013b). 29,007 households/106,352 people were preventively evacuated to temporary shelters in higher lands on September 29 and 30 (UN Viet Nam, 2013). By October 4 most of the evacuated persons had already returned to their homes and the evacuation centers hosted those families whose houses had been completely destroyed by the typhoon (UN Viet Nam, 2013b).

The passage of Typhoon Nari

Because of the heavy rains, water levels of rivers increased until October 4 and two lake dams broke (UN Viet Nam, 2013c). The Director of the National Center for Hydro-Meteorological Forecasting, Bui Minh Tang, claimed that Typhoon Wutip was "the strongest storm in the last six years" (Thanh Nien News, 2013a). On October 15, while the Central Region still was in the middle of the recovery phase, a second typhoon hit the region from Nghe An to Quang Nai provinces. Nari, the 11th storm, brought strong winds (with a peak of 194 km/h) and torrential rains provoking severe and extensive flooding from 1.5 to 2 meters in some districts of the Quang Binh and Ha Tinh provinces. The flood retreated from the hit region by October 25 (UN Viet Nam, 2013f) leaving behind vast damages.



Figure 4. Quang Binh Red Cross chapter staff bringing relief goods to families in Tuyen Hoa, Quang Binh province, in the aftermath of Typhoon Nari.

Source: International Federation of Red Cross and Red Crescent Societies (IFRC), 2013c.

Typhoon Nari caused the death of 27 people and an extensive damage to 13,061 houses (IFRC, 2013a), whereas due to the following flooding 96,760 houses were submerged (UN Viet Nam, 2013e). In Quang Tri, many houses repaired in the aftermath of Wutip were severely damaged when Nari struck (Viet Nam News, 2013b). Nari induced the preventive evacuation of 123,686 locals to minimize the loss of lives (UN Viet Nam, 2013d). Due to the flooding, another 8,580 people were evacuated on October 16 (Ibid). People were relocated to safer ground in different provinces, including Quang Nam and Danang city (Bihn Minh and Tait, 2013). The total economic loss caused by these two typhoons reached VND 1.5 trillion (USD 734 million) (IFRC, 2013b), affecting the lives of up to 504,339 residents in the nine provinces (IFCR, 2013c).

On November 7 and 9, when super typhoon Haiyan was approaching the Vietnamese coasts after heavily hitting the Philippines, Prime Minister Nguyen Tan Dung circulated two telegraphs, through which the Government disposed that central and local authorities needed to implement "the highest state of preparedness" (UN Viet Nam, 2013g) in order to mitigate and contain as much as possible the effect of the coming storm. As stated by Valentina Origoni, who works as UN Policy and Coordination Analyst at Office of the UN Resident Coordinator in Viet Nam, families had been repeatedly hit by natural disasters (UN Viet Nam, 2013), which had repercussions on their actual preparedness and resilience in the event of a new typhoon.



Figure 5. Number of people affected by Wutip and Nari.

Source: Central Committee for Flood and Storm Control (CCFSC) in International Federation of Red Cross Red Crescent Societies (IFRC) Situation Report, 2013c.

Vietnam's National Centre for Hydro-Meteorological Forecasting closely monitored the path of Haiyan and predicted that it would have reached the Central Region on November 10 as a Category 2 typhoon. The Government and NGOs jointly organized an immediate plan of evacuation in the central and southern provinces for 600,000 people (IFRC, 2013b), who then returned home as, on November 10, the typhoon moved northward (UN Viet Nam, 2013h). This change in the typhoon pathway required a second urgent round of evacuation of 200,000 locals in the northern region. Haiyan eventually turned into a Weak Category 1 typhoon and hit the Hai Phong and Quang Ninh provinces on November 11 bringing strong winds and torrential rains.

The impact of the typhoon was not as devastating as expected. A few of the 14 reported deaths (UN Viet Nam, 2013h) actually preceded the passage of the typhoon and occurred during the preparation phase (IFRC, 2013b). The National Committee for Search and Rescue confirmed this, stating that the victims were trying to reinforce their houses or cutting trees amid powerful winds (Asian Pacific Defence Forum, 2013). 89 people were injured and 75 houses collapsed. While the human loss was limited, the impact on agriculture was extensive, since 49,096 ha of cash crops were affected by the typhoon (UN Viet Nam, 2013h).

To coronate the already devastating typhoon season, the storm Zoraida reached the Vietnamese coastal region on November 14 with 41 victims due to what has been defined a "historic" flooding (Vietnam Net, 2013). "According to the Central Steering Committee for Storm and Flood Control more than 80,000 people have been rendered homeless" (Asian Pacific Defence Forum, 2013). Mr. Nguyen Thiet, 84, who lives in Tu Nghia district (Quang Ngai) declared, "I've never witnessed any violent floods like this" (Vietnam Net, 2013).

As clearly demonstrated by the passage of the 2013 typhoons, the Vietnamese Central Committee for Flood and Storm Control (CCFSC) and the Vietnamese Hydrometeorological Service watchfully monitor the path of the storms and are able to forecast the areas of impact with adequate notice, which allows the prompt evacuation of residents in the targeted areas. In the case of typhoon Wutip the UN Disaster Risk Management Team had been monitoring the storm since September 27 (UN Viet Nam, 2013a). Likewise, typhoon Nari was monitored since its passage in the Philippines on October 12. Nonetheless, as the case of Haiyan confirmed, the typhoons can rapidly change direction and do not necessarily follow a specific pattern. Indeed, the Viet Nam Initial Communication reported in a preliminary assessment to the UNFCC that it has been estimated that typhoon tracks "have been moving southwards" (NCAP, Climate Change and Climate Variability). This is in contradiction with the pathway of typhoon Haiyan, which, on the contrary, moved northward. Also, it



Figure 6. Areas affected by the Tropical Typhoons in the Fall of 2013

Source: International Federation of Red Cross and Red Crescent Societies (IFRC), 2013c.

is hard to preventively forecast the intensity of the typhoon when hitting the region, since it can rapidly turn into a tropical depression.

3. THE IMPACT ON PEOPLE: EVACUATIONS AND RELIEF PROGRAMS

The previous section emphasized the importance of an effective early warning system capable of activating prompt responses in the event of natural disasters. Indeed, in 2009, when typhoon Mirinae struck, locals ascribed to the lack of warning and of official information on flooding in the media as the major responsibility for personal tragedies (Di Gregorio, 2013).

As a result of the increasing governmental commitment in recent years, the typhoons of fall 2013 demonstrated the effectiveness of prompt emergency programs and of the early warning system, which mainly consisted of evacuation plans towards temporary centers in higher lands or underground bunkers, and house reinforcement. Viet Nam has managed to develop a very systemic evacuation mechanism in conjunction with the Red Cross and the military. In preparation for Haiyan, the Government mobilized around 460,000 standing forces between soldiers and local army to ensure the evacuation before and during the emergency. As asserted by a senior official of the army "more than 170,000 soldiers assisted in the mass evacuations several hours ahead of the expected time of landfall and were well prepared to expect the worst-case scenario" (Asian Pacific Defence Forum, 2013).

883,000 people were relocated from 11 central provinces to safe zones (BBC, 2013). People relocated to internal higher grounds mostly accounted for residents of low-lying coastal areas (New Straits Time, 2013). However, a significant evacuation concerned Con Co Island, a small island 27 km from the coast of Quang Tri province. According to the Tuoi Tre newspaper, "All 250 people on the island including residents and soldiers were evacuated to underground shelters where there is enough food for several days" (News.com.au, 2013).

It is interesting to highlight that the process of evacuations was coercive. In fact, authorities informed people refusing to leave their homes that they would have been forced to (Al Jazeera, 2013). This means that in the villages, where evacuations were arranged, displacement was massive and authorities ensured that nobody was left behind, regardless of the locals' will to stay and protect their livelihoods.

The Red Cross assisted the evacuation of 100,000 people mainly focusing on the elderly and orphans (UN Viet Nam, 2013g). Indeed, during evacuation procedures, specific attention was dedicated to vulnerable categories. As the Women's Union representative of Hung Trach, in the Quang Binh province, asserted, "we organized boats to evacuate women and children first and the disaster group works with individual households on disaster preparedness" (Save the Children Viet Nam Blog, 2014).

In the case of typhoon Wutip, the military and the police engaged in the construction of temporary shelters in higher lands, along with 700 volunteers of the Red Cross (UN Viet Nam, 2013b). The main house reinforcement strategy consisted of sand bags, which were also used for protection in underground bunkers with a capacity of 40 to 50 people. In preparation for Haiyan, Tuoi Tre News reported (2013b), "At least 50 underground sandbag bunkers have been built in Duy Xuyen district, Quang Nam province. Food, rice, instant noodle bags, fresh water, and blankets have been stored in the bunkers. The elderly and children have been given first priority to take shelter in them".

It is interesting to note that evacuees are usually evacuated extremely rapidly, as the case of Haiyan showed, when 200,000 were evacuated in less than one day. Media reported that locals complained about late warnings from the Government, which affected the effectiveness and promptness of preparedness measures (BBC, 2013). Furthermore, the massive evacuation plans resulted in an overload of some shelters that could not contain evacuees (New Straits Time, 2013); relocated people were also expected to bring food and necessities for three days (Al Jazeera, 2013), which was difficult to attain, given the late notice.

People resided in the shelters for the time strictly necessary and returned home a few days after the passage of the typhoon, following a model of "flash" displacement. As reported by Olivia Dun (2009), "During the immediate disaster period many people are evacuated temporarily to higher ground and safer structures, however, this is often only for a short period of 1-2 days until the disaster passes".

Reconstruction of the damaged houses is seen as the main priority for recovery to the extent that poor residents sacrifice their basic human needs and "invested their money on roofing materials" rather than on food (UN Viet Nam, 2013c). After the passage of Wutip, reconstruction started immediately, allowing the rapid return of the relocated families to their homes. Indeed, by October 9, 70-80% of the houses was repaired (Ibid). The remaining percentage was expected to finish the reparation work in the following couple of weeks. However, the techniques used to fix the damages responded to immediate needs rather than long-term resilience, as residents did not have the money to buy more resistant materials (Ibid). As a consequence, given that in coming years the same population may be easily affected by new storms, vulnerability is likely to increase, as every natural disaster will weaken already precarious protection measures. Nevertheless, due to the increasing demand of reconstruction materials, prices doubled and poor people without access to them, turned to more insecure methods (UN Viet Nam, 2013c).

Different non-governmental organizations have been committed to relief programs supporting the most vulnerable categories. In the case of typhoon Wutip a central need was to provide poor people, whose houses had collapsed (around 15-20% of the hit population), with construction materials they could not purchase otherwise (Un Viet Nam, 2013c). These vulnerable residents were forced to prolong their stay in the shelters (UN Viet Nam, 2013b) and postpone their return. The passage of typhoon Nari did not improve the situation. Indeed, on October 23 some families were "still living under tarpaulins on the rubbles of their damaged homes, or [...] with

relatives or neighbors, which are by no means a long-term solution" (IFCR, 2013a). To help those affected, the Red Cross planned a cash grant program of VND 1 million per family (UN Viet Nam, 2013c) after Wutip and made available VND 6.6 million after Haiyan (IFCR, 2013b). The Government provided the families of the victims with grants of VND 3,000,000, while the Red Cross distributed 200 household kits and the Ministry of Health sent medicines to the provincial Health Departments (UN Viet Nam, 2013b). World Vision was instead concerned with the provision of food, water and non-food items to alleviate the constraining conditions of the affected population (UN Viet Nam, 2013c), as well as Save the Children offering education materials, shelters and cash grants (Save the Children Viet Nam). The provision of school materials has been deemed an important recovery strategy, as poor parents cannot afford new books and school items in the aftermath of a natural disaster (Save the Children Viet Nam, 2014).

It is interesting to underscore that locals perceive reparation and reconstruction as a duty and that the Government did not issue any appeal for international help in the aftermath of the typhoons, which seems to illustrate a general sense of autonomy and independence of the Vietnamese people in dealing with the traumatic effects of natural disasters. Most particularly, natural disasters outline a clear gender division of labor with men dealing with disaster management and rapid response activities, and women carrying out domestic tasks and taking care of children and the elderly (Oxfam, 2009). The exclusion of women from the disaster risk reduction activities affects the success of prevention programs, as an important part of the population is unaware of the precautionary behaviors to adopt to minimize the effects of natural disasters.

4. THE LONG-TERM EFFECTS OF TYPHOONS: A POSSIBLE NEXUS WITH MIGRATION PATTERNS

While the previous section discussed evacuations as a preventive 'forced displacement', this section aims at offering an overview of the possible connection between typhoons and migration. It is expected that the 2013 typhoons and future natural disasters will have an important effect on migration patterns.

Economic factors, such as income/wage differentials between the area of origin and the destination (Nguyen-Hoang and John McPeak, 2010) and the desire to improve one's socio-economic status, are traditionally considered as key drivers for migration. Poverty and social exclusion being main reasons for moving, it is important to understand whether natural disasters play an incisive role in the impoverishment of people living in the Central Region.

By looking at poverty rates in Quang Binh, it is possible to recognize a positive decrease up until 2005. However, in 2006 the poverty rate suddenly surged from 9.72% to 25.36%, when the region was hit by natural disasters severely affecting agriculture (GAR, March 2011). This Figure demonstrates the hypothesized nexus between the occurrence of natural disasters and poverty increase. In her research study concerning the Mekong Delta, Olivia Dun draws the same conclusion by asserting that "repeated flooding can be identified as a major contribution to the situation of poverty" (Olivia Dun, 2011). By pushing this further, one can identify a linkage between natural disasters, poverty and migration: *"Floods and droughts are becoming more likely, which will affect agriculture, water supplies and hydro-electricity generation, as well as trade and industrial production in urban areas. Floods and droughts especially affect the poorest women and men who have the least resilience to deal with climatic stresses. These stresses are felt in particular in rural areas, and provide additional incentives to migrate" (UN Viet Nam, 2009).*

The 2009 Viet Nam Population and Housing Census showed that internal migration has been progressively increasing in the last 10 following both a rural-to-urban and a rural-to-rural pattern (UNFPA, Young people, 2011). The Census revealed that from 1994 to 1999 a majority of migrants came from the North Central and the Central Coastal regions and the Mekong Delta region and that migration flows from these areas increased in the following few years (UNFPA, Factsheet).

As the graph above shows, destination areas for migrants were the Southeast region, the Red River Delta and the Central Highlands. Most especially, more than 570,000 people moved from the Central Coast to the Southeast (Ministry of Planning and Investment, 2011), with Ho Chi Minh City receiving 136,700 in-migrants alone (2009 Viet Nam Population and Houses Census). Da Nang in the Central Region, as a dynamic industrial park, also attracted 100,600 in-migrants (2009 Viet Nam Population and Houses Census).

Youth are the most common migrant, ranging from age 15 to 29 (Ministry of Planning and Investment, 2011). The main reasons for migration are work opportunities and high education. In 2009, more than half of migrants were female, leading to what has been defined as a 'feminization' of migration (UNFPA, Profile, 2011). The migration flow also has an important impact on sending areas and can produce 'skip-generation families', whereby the elderly take care of their grandchildren while young parents migrate to dynamic economic areas (UNFPA, Young People, 2011). This phenomenon is becoming increasingly common and can also have important implications on childcare¹.

As a result of the disastrous fall of 2013, many students in Ho Chin Minh who originally came from the Central Region did not go back home for holidays, as their families could not afford the travel. "80 percent of students who came to look for holiday-period jobs are from the Central Region, especially those whose families were affected by the disasters", the Deputy Director of the Ho Chi Minh City Student Assistance Center said (Thanh Nien News, 2013b). According to a study conducted by Oxfam in the Quang Tri province, children do not return home after graduation, which will inevitably impact the household profile in the area of origin; although remittances will play an important role in the improvement of resilience, the province is likely to suffer for the lack of young residents (Oxfam, 2009).

The overview presented by the 2009 Census only offers a limited aspect of internal migration. Indeed, to be considered as such, migrants are defined "as people whose place of residence 5 years prior to the time of the census is different from their current place of residence" (Ministry of Planning and Investment, 2011), which means that the Census does not take into account seasonal and temporary migration and, hence, underestimates the people's mobility within the country. Likewise, the Census overlooks the reasons for migration, which would require further investigations.

A very common coping strategy for households affected by natural disasters is seasonal migration (Oxfam, 2009), as it allows income diversification and increases locals' adaptation capacity without implying a drastic change in the household structure. Among the benefits temporary migration brought to her family, a 33 year-old woman mentioned two interesting aspects concerning the improvement of resilience and solidarity networks: "We also had the roof repaired *and* [...] contributed a little money for a charity fund for flood victims in the central part of Vietnam" (Resurreccion and Van Khanh, 2007).

Temporary out-migration mainly concerns young men, who benefit from easier mobility, better non-farming work opportunities near home and access to financial credit (Oxfam, 2009). Indeed, female migrants are more likely to encounter "stigma, guilt and criticism" for leaving their families behind (Resurreccion and Van Khanh,

¹ Interview with Amida Cumming, IOM, April 29, 2014.



Figure 7. Inter-provincial in-migrant and out-migrant populations over the five years preceding 2009, by urban/rural place of residence/region.

Source: United Nations Population Fund (UNFPA), Factsheet, 2010.

2007) and often earn less than men (UN Viet Nam, 2009). Male temporary migration produces a shift in social structures: women are charged with further responsibilities (UN Viet Nam, 2009) and take the lead over traditional male activities during outmigration periods, shaping the phenomenon of the 'feminization of agriculture'. In the Quang Tri province, men temporarily migrate especially after floods towards the Southern Region; most of them return home for cropping and reconstruction efforts after the passage of natural disasters (Oxfam, 2009).

The emotional impact of this forced displacement, both temporary and permanent, has been documented by different sources. Due to the challenging environment and the increase of urban poverty and vulnerability, many migrants are now turning to suburban or rural areas, where there are emerging industrial parks – areas of the city designed for industrial use - and they can be closer to their families: "I moved back because of my family. I want to be closer to home. I used to work in HCMC as a seasonal mechanical worker" (Action Aid and Oxfam, 2012), a man coming from Hai Phong explained. The same feeling was shared in the Quang Tri province, where migrants expressed their desire to stay home near their families (Oxfam, 2009).

This tendency could also explain why rural-to-rural migration has increased and has gained importance over the past 10 years. Lesser living costs in smaller cities are also likely to reduce pressure on migrants regarding remittances and will allow them to conduct a more stable life-style in destination areas. Being closer to home will benefit the psycho-social well-being of migrants, allowing for greater social capital in the receiving locations.

In conclusion, the exacerbation of poverty, also as a result of natural disasters, pushes locals to migrate according to the aforementioned patterns. In the aftermath of the tragic events of fall 2013, it is therefore likely that locals will use migration as an important coping strategy. Aside from short evacuations, repeated typhoons may induce longer-term displacement patterns. Nonetheless, given the methodological constraints previously discussed, it is hard to obtain estimates on short-term migrations

and to assess their evolution in the aftermath of natural disasters. Long-term migratory movements are more visible, in cases where the affected population has failed in rehabilitating their livelihood and, still suffering from the effects of environmental disasters, decide to migrate for "various social and economic reasons" (Dun, 2009).

4. NATIONAL STRATEGY PLANS AND LONG-TERM STRATEGIES

It has been assesses that the Comprehensive Poverty Reduction and Strategy (2001– 2010) has "emphasized that natural disasters set back developmental gains and put people at the risk of falling back into the poverty trap" (World Vision, 2011). Therefore, most of the programs undertaken by the Government and international organizations emphasize sustainable resilience and community-based disaster risk management. Viet Nam has approved the UN Framework Convention on Climate Change and long-term policies have become part of the National Strategy on Natural Disaster Prevention, Response and Mitigation to 2020 and of the National Strategy for Climate Change of 2011. In light of this commitment, the Ministry of Natural Resources and the Environment issued a report stating that "from 2010 to now (2014), the Ministry *has* built and mobilized nearly USD 1 billion from international aid and preferential loan to implement programs and projects in response to climate change" (MONRE Website, *italics added*).

According to the National Strategy for Climate Change, by 2020 it is expected that the hydro-meteorological observation network will be perfectly functioning and will achieve a three-day storm predictability so as to improve preparedness (National Strategy for Climate Change, 2011). The Center Committee for Flood and Storm Control (CCFSC) initiates actions from local authorities warning them about the on-coming storms, issuing emergency telegraphs to instruct local authorities about the increase of preparedness measures and evacuation dispositions, and sending delegations to the concerned provinces (UN Viet Nam, 2013d). In preparation for Haiyan, the Prime Minister openly stated his concern and called for the higher level of preparedness procedures. After Nari, the provincial Committee for Flood and Storm Control (CFSCs) were very active: in Da Nang a Recovery Board was created to handle food security and shelter (UN Viet Nam, 2013d).

The UN Resident Coordinator Pratibha Mehta declared: "We are impressed by the extraordinary preparedness measures taken by the Government when confronted with this storm. Strong leadership, right from the highest level, played a key role in minimizing the impact and number of lives lost" (UN Viet Nam, 2013). Susan Mackay, the chief of communications for the United Nations in Vietnam, added, "The government has an extraordinary level of response. They invest both in preparedness and response, and the highest state of alert was called by the prime minister [...] The preparations have been underway for days now. They activated both civil and military capacities. This is a country that is very resilient and extremely well prepared" (Abc.net.au, 2013).

The National Strategy on Natural Disaster Prevention, Response and Mitigation to 2020 was adopted in 2007 with the purpose of minimizing "the damages and the losses to humans and properties, the damage of natural resources and cultural heritages, and the degradation of environment" (Action Plan for the Implementation of the National Strategy, 2008). The Strategy involves several ministries, among which include the Ministry of Agriculture and Rural Development (MARD) and the Ministry of Natural Resources and the Environment (MONRE). In line with a holistic approach, the national planning offers a wide and cross-setting range of policies, from non-structural measures, such as the formulation of common laws on natural disaster prevention, to structural measures, such as dyke constructions and sustainable forest management. Particular attention is dedicated to multi-level coordination and communication between Central authorities and local institutions in terms of developing an early warning system and capacity building. In the event of natural hazards, Provincial Flood and Storm Control Committees take action in developing evacuation plans and the prepositioning of supplies and equipment (Ngoan et al., 2013). In light of the massive evacuations that took place in the Fall of 2013, it is therefore possible to affirm that Provincial Committees, with the support of the Central government, are able to promptly implement preventive measures; for example, the People's Committee of Da Nang city successfully and preventively evacuated 20,000 households in preparation for Haiyan (Tuoi Tre News, 2013a).

The National Strategy also covers a plan for the relocation of 135,537 households living in the most vulnerable areas. By 2015 the Government plans to resettle 3,891 households exposed to floods and erosion in the North Central Region and 15,391 households in the Coastal Southern Central under the lead of the Department of Cooperatives and Rural Development (Action Plan, 2008). The majority of the people (93,685 households) included in the resettlement program reside in the Mekong Delta (Action Plan, 2008), which shows that, while relocation is deemed a pillar of environmental adaptation in the Southern Viet Nam², in other regions the Government prefers adopting different measures. In fact, it has been impossible to find updates with regard to this program in the Central Region and to evaluate its eventual efficacy in the event of 2013 typhoons.

While the Government is mostly concerned with structural measures, such as flood management, international actors play a fundamental role in non-structural programs. Among the structural measures it is worth mentioning the strengthening, repair and constant monitoring of the 720 km sea-dykes and river mouth-dyke in the Central Region to preserve and increase the protection of the most vulnerable areas (Action Plan, 2008). With respect to non-structural measures, local Committees for Flood and Storm Control and other local People's Committees take the lead of most of the projects. In close cooperation with such local authorities, a network of 17 international and national NGOs have been able to implement Community-based Disaster Risk Management (CBDRM)³ activities in 23 provinces since 2000 (CBDRM, 2008).

Following this track, in 2011 World Vision launched a three-year program aiming at containing the negative impacts of natural disasters by undertaking transversal plans of action covering awareness training, community-based risk reduction activities and improvement of local rapid response teams (World Vision, 2011). World Vision organized a three-day training on first aid and rescue addressed to the members of the rapid response teams and to nurses. Truong Thi Tinh, a nurse who attended the training, claimed that it "was very useful and practical for us. It not only provided us with knowledge but also gave us skills to save people during floods and storm in our community" (World Vision, 2012).

According to Oxfam, substantial improvements have already been achieved: "Grains have been moved to higher and dryer places to avoid water submergence. The peasants have also begun to reinforce their houses by tying them to the ground to avoid collapse once disasters happen. [...] Another important change was to protect their living environment by changing their awareness as well as everyday behaviors" (Oxfam Viet Nam, 2014). Oxfam also offers a precious example of adaptation programs in conjunction with socio-economic development, as farmers

^{2.} Interview with Jane Chun, UNDP, February 19, 2014.

^{3. &}quot;Community-based disaster risk management is a process in which at-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities" (Joint Advocacy Networking Initiative in Viet Nam, p. 14).

are given financial support and training for the most beneficial livelihood model. According to a beneficiary living in Quang Nam, Mrs. Ni, "the models have changed the way *my* family responds to disasters" (Oxfam Viet Nam, 2014, *italics added*) and allowed them to be proactive instead of passive witnesses and victims of natural disasters.

In Thua Thien Hue, the Center for Sustainable Rural Development organizes training for the improvement of the early warning system and disaster preparedness. In light of their increasing role during emergencies, the program is addressed to women and already had positive results. Ms. Pham Thi Cuc, a beneficiary of the project, stated that, thanks to these activities, she now knows how to behave in the event of natural disasters and that her family stockpiles wood, food, water and other items in dryer places to face floods (UN Women, 2012).

These programs have the ability to increase resilience and empower locals when they are facing natural hazards. Even though it is difficult to assess their impact during the 2013 typhoons, it is possible to affirm that, according to project participants, they will definitely be better-equipped to reduce disaster risks and causalities. As proven by the experience of the Viet Nam Red Cross in the aftermath of typhoon Wutip, the community-based disaster risk management has indeed "contributed substantially to these communities' awareness and preparedness to lessen the impact of disaster events, many communities still require support to enhance their knowledge and awareness" (IFCR, 2013c).

Finally, in 2011 the Women's Union (WU) of Da Nang Viet Nam, in conjunction with the Institute for Social and Environmental Transition, launched a microcredit and technical assistance program to develop storm resistant shelters in vulnerable districts. The program efficacy was tested with the passage of typhoon Nari: "244 of the 245 beneficiary households had completed construction thanks to the Project, and all 244 households were safe from Typhoon Nari's force" (International Partnership for Implementation, Education and Research on Society, Natural resources and the Environment, 2014), while surrounding households were heavily affected. This positive experience highlights the importance of investing in preventive measures aimed at increasing locals' preparedness and resilience, which have a paramount role in the event of violent natural hazards.

5. CONCLUSION

Viet Nam is adversely affected by climate change and natural disasters. The Central Coastal Region is particularly vulnerable. It suffers from sudden-onset disasters, such as typhoons and monsoons, which exacerbate the effects of slow-onset disasters, namely sea-level rise, salinity intrusion and coastal erosion. Although it is difficult to forecast future trends, by looking at last years, it is possible to assume that the socio-economic costs of typhoons have been increasing due to their frequency and violence, provoking serious consequences on local residents.

The proximity of natural disasters affects recovery capacity and disaster preparedness in highly vulnerable areas. The Fall of 2013 offers a valid example of the devastating repercussions of repeated natural disasters in the coastal region, causing the prompt evacuations of up to 883,000 people to safer lands or underground bunkers in preparation for Haiyan. The early warning and rapid response systems have proven to be effective and highly coordinated between the Central and provincial governments, involving both civilians and the military.

Evacuations were promptly arranged and coercive. People were relocated a few hours before the passage of the typhoons and stayed in temporary shelters for the time strictly necessary (around one to three days). Even though people were expected to bring their own food to shelters, relief programs offered food and water to the displaced. As a result of governmental support programs, fast recovery capacity and reconstruction efforts, locals managed to rapidly return home. Nonetheless, due to the increasing prices of construction materials in the aftermath of natural hazards, poor residents turned to unsafe construction material, which in coming years is likely to affect their resilience capacity. Moreover, the proximity of 2013 typhoons provoked a longer duration of relocation for some locals who could not properly repair their houses in time.

Despite sudden-onset disasters usually provoking short-term evacuations, households in rural areas have adopted migration strategies in order to improve their economic status, which is highly compromised by the occurrence of violent calamities. Available data on migration underestimate the actual mobility of people, but show a general increase of all types of internal migration, in particular, from the Central Region to the urban centers in the Southern Region, for work or study. It is expected that the events of Fall 2013 will further boost migration, as a result of the economic loss the typhoons caused. Due to methodological constraints, it is however difficult to understand such behavioral changes, as socio-economic consequences extend over time and are not immediately perceivable.

An interesting finding also shows that some young people who go to universities in urban centers could not go back home for Christmas holidays because of the economic consequences the typhoons had on their families' incomes. The impoverishment of rural households pushes youth to remain in more dynamic urban centers, which, in the long run, may provoke an aging of the population in the area of origin.

The Government has adopted a holistic perspective with regard to climate change and the national system is progressively improving. With reference to Fall of 2013, Viet Nam has proven to have an efficient preparedness and early warning system with high- level coordination. Nonetheless, the Government will continue to strengthen mitigation and adaptation strategies according to the set of priorities outlined in the National Strategy on Natural Disaster Prevention, Response and Mitigation to 2020 and of the National Strategy for Climate Change of 2011, accounting for structural and non-structural measures.

Thus far, the collaboration with national and international NGOs has been productive and encouraged a participatory approach to resilience. As a result of these programs, locals are more aware and empowered rather than highly vulnerable; and have turned into proactive actors in emergency situations. Nonetheless, as the events of 2013 demonstrated, the effects on local populations are still serious and there is an urgent need for the national strategies to be fully implemented at the local level. \blacklozenge

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