

Surviving Disaster: Resettlement, Recovery and Ongoing Risk at Nevado del Ruiz, Colombia

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Roger Few



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Table of Contents

Acknowledgments.....	7
1. Introduction.....	8
2. Approach.....	9
3. Background to the case study.....	10
3.1 Case study research sites.....	11
4. Methods.....	13
4.1 Workshops.....	13
4.2 Interviews.....	15
4.3 Survey.....	15
4.4 Participant Observation.....	17
5. Recovery and Livelihoods.....	18
5.1 Livelihood trajectories.....	18
5.2.1 Housing.....	33
5.3 Dynamics of Recovery.....	40
5.4 Conclusion.....	57
6. Dynamics of risk in high-risk areas around Nevado del Ruiz.....	62
6.1 Livelihoods in high risk areas.....	62
6.2 Knowledge about hazards, preparedness plans and risk Communication.....	69
6.3 Conclusion.....	74
7. Summary of Findings.....	76
References.....	77
Appendix A. Survey Questionnaires.....	78

Table of Tables and Boxes

Table 1 Research sites and type of population.....	12
Table 2 Sample population by location and household group.....	16
Box 1. Changes in livelihood trajectories.....	25
Table 3. Resettled population by location and coverage of basic needs group.....	42
Box 2. Basic needs and quality of life trajectories.....	54
Box 3. Household Trajectories High Risk Areas.....	69

Table of Figures

Figure 1. Map of Nevado del Ruiz influence areas.....	12
Figure 2. Main reported sources of income in Armero Guayabal in 1985 and 2015 (n=99 respondents).....	19
Figure 3. Main source of income Lérída in 1985 and 2015 (n= 126 respondents).	20
Figure 4. Reported changes in source of income immediately after 1985, Tolima Department.....	21
(Armero Guayabal and Lérída) resettled households (n = 225 respondents).....	21
Figure 5. Reported Actions taken to recover source of income Armero Guayabal (n = 99 respondents)	23
Figure 6. Actions taken to recover source of income, Lérída (n=126 respondents)	23
Figure 7. Main problems affecting recovery or generation of new source of income, Armero Guayabal (n=99 respondents).....	26
Figure 8. Main problems affecting recovery or generation of source of income, Lérída (n=126 respondents).....	27
Figure 9. Basic needs coverage, Armero Guayabal 1985-2015 (n=99 respondents).....	28
Figure 10. Basic needs coverage Lérída 1985-2015 (n=126 respondents).....	29
Figure 11. Basic needs coverage original population in the Tolima Department (n=140 respondents from Armero Guayabal and Lérída).....	30
Figure 12. Main Source of income Villa Maria Municipality (respondents from Nuevo Rio Claro and Nueva Primavera n= 46)	31
Figure 13. Basic needs coverage Villa Maria (n=46 respondents).....	33
Figure 14. Type of temporary accommodation after the disaster (n= 269 respondents)	34
Figure 15. Type of house before 1985 (Villa Maria n=46, Armero Guayabal n=99, Lérída n=126 respondents).....	35
Figure 16. Quality of house before 1985 and in 2015 (Villa Maria n=46, Armero Guayabal n=99, Lérída n=126 respondents).....	36
Figure 17. House improvements for resettled households in the Caldas and Tolima Departments 1995, 2005 and 2015 (n= 269 respondents).....	37
Figure 18. Access to Potable Water 1985 and 2015 (Villa Maria n=46, Armero Guayabal n=99, Lérída n=126 respondents).....	39
Figure 19. Access to Electricity 1985 and 2015 (Villa Maria n=46, Armero Guayabal n=99, Lérída n=126 respondents).....	39
Figure 20. Access to Primary Education 1985 and 2015 (Villa Maria n=46, Armero Guayabal n=99, Lérída n=126 respondents).....	40
Figure 21. Basic needs coverage trends for resettled households that covered basic needs before 1985.....	42
Figure 22. Basic needs coverage trends for resettled households that did cover basic needs before 1985.....	43
Figure 23. Basic needs coverage trends for resettled households that that covered and did not cover basic needs before 1985 in the Municipality of Villa Maria.	44
Figure 24. Basic needs coverage trends for resettled households that covered and did not cover basic needs before 1985 in the Municipality of Armero Guayabal.	44
Figure 25. Basic needs coverage trends for resettled households that covered and did not cover basic needs before 1985 in the Municipality of Lérída.....	45
Figure 26. External factors affecting recovery (n=269 respondents)	46

Figure 27. Problems generating/maintaining source of income between the disaster and 1995 based on coverage of basic needs before 1985 (group 1 'covered' n= 147 and group 2 'did not cover' n= 122).....	47
Figure 28. Problems at the community level affecting recovery based on coverage of basic needs before 1985 (valid responses: group 1 'covered' n= 144 and group 2 'did not cover' n= 122).....	48
Figure 29. Community actions and activities that have supported household recovery (includes all resettled homes interviews n= 271)	49
Figure 30. Community actions and activities that have supported household recovery and basic needs coverage trends (valid responses: group 1 'covered' n= 146 and group 2 'did not cover' n= 121).	50
Figure 31. Quality of life when households were most satisfied (Villa Maria n=46, Armero Guayabal n=99, Lérída n=126 respondents).....	51
Figure 32. Quality of life and coverage of basic needs (valid responses: group 1 'covered' n= 147 and group 2 'did not cover' n= 122).....	52
Figure 33. Quality of life and coverage of basic needs per municipality	53
Figure 34. House material and basic needs per municipality before 1985.....	55
Figure 35. Received house quality and basic needs per municipality.....	56
Figure 36. House quality 1985-2015 and basic needs per municipality.....	56
Figure 37. Reasons to live in high risk areas (respondents Villa Maria n= 40, Armero Guayabal n=40)	62
Figure 38. Sources of income in high risk areas – Villa Maria and Armero Guayabal (respondents Villa Maria n= 40, Armero Guayabal n=40)	63
Figure 39. House ownership in high risk areas (respondents Villa Maria n= 40, Armero Guayabal n=40 respondents).....	65
Figure 40. Access to services in high risk areas (respondents Villa Maria n= 40, Armero Guayabal n=40)	66
Figure 41. Basic needs coverage in high risk areas – Caldas (n=40 respondents).....	67
Figure 42. Basic needs coverage in high risk areas- Armero Guayabal (n=40 respondents).....	67
Figure 43. Quality of life- high risk areas.....	68
Figure 44. Could be affected by an eruption – high risk areas	70
Figure 45. Location of households in relation to area of high risk – high risk areas.....	71
Figure 46. Have seen the risk map – high risk areas	72
Figure 47. Know what do to in case of an eruption – high risk areas.....	72
Figure 48. Household emergency plan – high risk areas	73

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1. Introduction

This document reports on the outcomes of the field research conducted for Work Package 3 (Vulnerability) of the STREVA (Strengthening Resilience in Volcanic Areas) project in Nevado del Ruiz, Colombia (NdR). It presents an analysis of the disaster recovery processes that ensued after the 1985 eruption of the volcano which killed more than 25.000 people and destroyed entire towns and villages leaving thousands of people without homes and livelihoods. While the causes of the disaster and its immediate impact have been widely studied, less is known about the recovery processes that have occurred since 1985. In this light, this report presents an analysis of the long-term impacts that the eruption had on people's wellbeing and livelihoods. This report also includes an analysis of livelihoods and vulnerability to volcanic hazards of those that live in the influence areas of Nevado del Ruiz.

The report is framed around the main research objective of WP3 (Vulnerability) of the STREVA Project which is to understanding **the long-term implications of volcanic activity on people's life trajectories, wellbeing and livelihoods**. It aims at investigating how social differentiation - underlined by socio-economic status, geographical location, (exposure to hazards) and access to entitlements and resources – influences the recovery processes and the dynamics of vulnerability to volcanic hazards. The findings underline the need to strengthen both how resettlement processes are supported in the long-term to enhance the chances for equitable, sustained recovery, and how preparedness measures are developed and implemented to help protect those who occupy high-risk zones.

The report is divided into four sections. The first section presents the research approach and methodology. The second section focuses on the analysis of the recovery processes that took place in Nevado del Ruiz, Colombia after 1985. The third section, presents an analysis of vulnerability to volcanic hazards in areas surrounding the volcano today. In the final section, the main conclusions of the study are presented.

2. Approach

Vulnerability is commonly understood as a combination of exposure to hazard and susceptibility to its impacts. Social science research on disaster risk emphasizes that both exposure and susceptibility are to large extent socially-generated conditions, and that people have varying degrees of underlying vulnerability that tend to shape how severely they are affected when a hazard occurs.

In STREVA, the term '**vulnerability**' is often defined as a condition of human subjects – of people, households, communities – as opposed to sectors, infrastructure and/or systems. This is because, ultimately, it is people who experience the consequences of hazards on their lives, wellbeing and livelihoods. Moreover, a people-centred approach to analysing vulnerability enables a focus on how different social groups experience and manage risk in different ways. **Risk**, in this sense, is defined as the interaction of hazard and vulnerability. Vulnerability can sometimes be analysed by looking at impacts – studying the effects of actual disaster events and how this *varies* for different social groups; but we can also analyse it as an inherent social condition in which we can assess the *potential* for exposure and susceptibility to harm.

Volcanic hazards may be brief and episodic in their violent phases, but they can induce complex and long-term patterns of social, economic and political impact. Moreover, as with many hazards, the ability to recover (or not) over time is a key facet of people's overall vulnerability to these impacts, and is something that varies from person to person, household to household, and community to community. This research aims at going beyond a focus purely on volcanic hazard events to seeing volcanic risk as an on-going risk *process* with on-going social impacts for the vulnerable (including implications for recovery). We also view vulnerability, impact and recovery as working not in a uniform way across an affected population but as a socially differentiated: recognising important differences in the experiences of different individuals, households and social groups.

3. Background to the case study

On the 13th of November 1985, after months of unrest, an eruption at Nevado del Ruiz produced pyroclastic flows and surges that melted its glacier resulting in a series of lahars or mud and debris flows, which descended following various river drainages (Pierson et al., 1990). These lahars reached towns and inhabited areas up to 90 kilometres away from the volcano killing thousands of people (Voight, 1990). The estimated total number of fatalities range between 23,000 and 26,000 (Aguilar and Bedoya, 2008, Cardona et al., 2005, Voight, 1990). On the western side of the volcano, following the tributaries of the Chinchiná River the mud flows reached the fertile coffee growing areas in the department of Caldas, killing approximately 1,100 people and destroying houses, bridges and other infrastructure. Towards the north and eastern slopes of the volcano, in the Tolima Department, a series of lahars fed the Gualí and Mariquita Rivers. The town of Armero was destroyed and areas surrounding Mariquita and Honda were also affected killing approximately 21,000 (Cardona et al., 2005). Despite the fact that the volcano was monitored and that scientists and other authorities had warned of the possibility of a major event, on the day of the eruption, a combination of confusing messages and lack of political willingness to evacuate people, resulted in the one of the worst volcanic disasters in recent history (Saavedra A., 1995, Voight, 1990). It has been argued that “the catastrophe was not caused by technological ineffectiveness or defectiveness, nor by an overwhelming eruption, or by an improbable run of bad luck, but rather by cumulative human error - by misjudgement, indecision and bureaucratic shortsightedness.” (Voight, 1990:349).

Survivors from Armero relocated all over Colombia but most moved to resettlement sites in the nearby towns of Lérída and Armero Guayabal and to the capital city of Tolima Department, Ibagué. As for those who survived in the Caldas department, they were offered resettlement homes in different locations in Villa Maria Municipality with two main sites at Nuevo Rio Claro and Nueva Primavera where about 160 houses were built. It has been estimated that 28,317 persons lost their homes and/or source of income. In order to house those who had lost their homes, 4,521 houses were built in resettlement sites out of which 2,967 were in the Tolima department (Paulsen de Cardenas and Cárdenas, 1998). The population movement in the area was significant. Lérída where the majority of the resettlement houses were built (1,868) experienced an important transformation in terms of its demographics and in 10 years, between 1985 and 1995, the population in this municipality’s urban areas increased from 3,796 to 13,964, or an increase of more than 10,000 people.

The disaster did not start or finish the day of the eruption: months and years after the event, individuals, families and entire communities are still struggling to recover from the events that occurred in 1985. This report analyses the long-term consequences of the eruption and explores the recovery processes of the populations affected by the disaster. It also discusses the ongoing vulnerability of populations that have moved into (or still live in) areas at high risk from future eruptions of Nevado del Ruiz.

3.1 Case study research sites

Three main research sites across the Tolima and Caldas provinces were identified and used to conduct WP3's field research. These study areas, or three municipalities, were chosen taking in to consideration residence patterns, the presence of resettled populations, and the type of hazard that could impact those who live in high risk areas. Nevado del Ruiz can produce a range of volcanic hazards including pyroclastic flows, lava flows, ash and lahars, and its area of influence includes urban and rural areas in municipalities in three different departments, Tolima, Caldas and Risaralda where more than 1.5 million people live. Yet, most of the impact caused in the past as well as the potential risk in the future comes from lahars (Voight, 1989). In this light, the field sites chosen for this research are located in the lower slopes of the volcano in the Municipalities of Armero Guayabal and Lérída in Tolima Department and Villa Maria in Caldas Department which are the municipalities that were most affected by lahars in 1985.

The municipalities chosen for the study, include large resettlement sites built after the 1985 disaster at the towns of Armero Guayabal and Lérída (Tolima), and Nuevo Rio Claro and Nueva Primavera (Villa Maria Municipality, Caldas) where recovery processes could be studied in detail. In order to complement the research data, some interviews with survivors from the 1985 disaster who live in the towns of Mariquita and Ibagué in Tolima were also conducted. In addition to that, both Armero Guayabal and Villa Maria Municipalities were chosen because they include areas of continuing high risk from volcanic hazards, lahars in particular, but where people have settled, returned to, or work. Choosing sites in both Tolima and Caldas Departments was also important as most of the research conducted in relation to Nevado del Ruiz has been undertaken in connection with the town of Armero in the Tolima department which experienced the highest fatalities as a consequence of the 1985 eruption. Less attention to the impacts as well as current vulnerabilities has been paid to disaster sites in the Caldas department.

Table 1 Research sites and type of population

Department	Municipality	Place name	Type of Population*
Tolima	Armero	Armero	Resettled and Original; High Risk
	Guayabal	Guayabal	
Tolima	Lérida	Lérida	Resettled and Original
Caldas	Villa Maria	Nueva Primavera and Nuevo Rio Claro	Resettled; High Risk

* See 4.3 for explanation of these



Figure 1. Map of Nevado del Ruiz influence areas

(original source ESRI, annotated by Anna Hicks)

4. Methods

Data collection for this report was conducted using a range of qualitative methods that included: workshops, semi- structured interviews, a questionnaire survey and conversations with local residents. Data collection activities were designed by researchers from the University of East Anglia: Dr. Roger Few and Dr. Maria Teresa Armijos, and carried out in collaboration with the project research partners, Universidad de Manizales.

4.1 Workshops

Once the research sites were chosen, a series of workshops were conducted at the departmental, municipal and community level with the aim of presenting the research plan to different stakeholders involved in the activities related to WP3 of the STREVA Project. First, two workshops were organised in collaboration with STREVA's project partner in Colombia, the Servicio Geológico Colombiano (SGC) in April 2015, to which the authorities from the municipalities, representatives from the Departmental Disaster Risk Units, and community leaders were invited. These introductory workshops, one in Manizales (Caldas) and one in Armero Guayabal (Tolima) were designed to present the aims and methodologies of the research to the authorities and community leaders. Once the research aims were approved by community and local leaders, four workshops in July 2015, one in each main research location (Armero Guayabal, Lérída, Nuevo Río Claro, Nueva Primavera) were conducted to introduce the project, research plan and methodology to community members. For these workshops music and theatre were used to communicate the aims of the project. Four final workshops were organised in March 2016 at each one of the communities where the research results were presented. These workshops also included the presentation of the films produced by the STREVA project about volcanic risk and recovery in Nevado del Ruiz (www.youtube.com/user/STREVAProject).



Image 1. Workshop in Caldas with authorities and community leaders April 2015



Image 2. Community Workshop in Nuevo Rio Claro, Caldas July 2015



Image 3. Final Project Workshop, Lérída. March 2016

4.2 Interviews

Semi-structured interviews with a total of 64 people from resettlement sites and areas of high volcanic risk were completed using a mix of snowball and purposive sampling methods. These interviews lasted between 30 minutes and 2 hours each. The interviews were conducted by Maria Teresa Armijos from University of East Anglia, Viviana Ramirez from University of Manizales and Juan Camilo Gomez and Jose Jimenez from University of Tolima.

Permission to do the interviews was sought from each respondent. This included a short summary of the STREVA project, an explanation of what the information would be used for, and request to tape the interview. All interviewees were given a leaflet with information about STREVA, contact information of the interviewer and explanation on the option to withdraw their responses within a month of the interview. Interviews were carried out in Spanish at people's homes. Unless otherwise noted, all of the interviewee's names mentioned in this report have been anonymised.

4.3 Survey

A survey questionnaire was administered in 480 households across the Municipalities of Armero Guayabal, Lérída and Villa Maria. The sampling frame for the survey was divided in three groups of households:

1) People who had been affected by the 1985 eruption and who lived in resettlement sites (=resettled population). These households could include generations born after the resettlement. (All interviewees were people who were able to report on the period immediately before the 1985 disaster through to the time when the survey was conducted in 2015).

2) People who lived in the towns where the resettlement homes were built before the eruption or the 'original population' (= original population)¹. These households could include generations born after the resettlement process took place. (All interviewees were people who were able to report on the period immediately before the 1985 disaster through to the time when the survey was conducted in 2015.)

3) People who live in areas of high risk to volcanic hazards today (= high risk population). All interviewees were people who were able to report on the period immediately before the household moved into the high-risk zone through to the time when the survey was conducted in 2015.

Based on the mapping exercises conducted by Universidad de Manizales, and census data gathered for each municipality, a target number of households were allocated to each one of the three groups, proportionate to the estimated population in each (See table 2 below). In total 480 households were visited by the team of enumerators.

Table 2 Sample population by location and household group

	High Risk population	Resettled population	Original (before settlement was built) population	Total
Villa Maria	40	46		86
Lérida		126	101	227
Armero Guayabal	40	99	39	178
Total	80	271	140	491

¹ This group was included in the survey to compare data with that from resettled residents, and because they too experienced the eruption's consequences.

Two survey questionnaires were created and used, one for resettlement sites and original population (appendix 1) and one for people who live in areas of high volcanic risk (appendix 2). The survey questionnaires were designed for two STREVA work packages, WP3 (Vulnerability) and WP4 (Governance), with the assistance of local partners at Universidad de Manizales. The survey was applied using a random sample selection of households in each location. Prior to all the interviews, the team members explained the purpose of the survey, introduced the STREVA project and sought permission from each individual. A leaflet containing information was handed out to all of the respondents.

A team from the Department of Social Psychology at Universidad de Manizales, Colombia, led by Lina Zambrano and Viviana Ramirez conducted the data collection for the survey and contributed to research design and analysis. The survey team received training by Teresa Armijos on research methods and ethics before they started their work in the field. The statistical analysis was conducted by a consultant hired by WP4, Nina Becker.

4.4 Participant Observation

During the fieldwork period, in addition to the semi-structured interviews and surveys a considerable amount of time was spent with local residents while they conducted their daily routines and activities. This included long conversations with different people or simply talking to people encountered during the trips across the Tolima and Caldas departments. In addition, the team of enumerators recorded their daily impressions in a field diary.

5. Recovery and Livelihoods

This section presents the analysis of recovery after the 1985 eruption of Nevado del Ruiz. It focuses on the population affected by the 1985 eruption and those that lived in the towns where the resettlements were built after the event. It analyses whether there are differences in the trajectories of recovery and perceptions of well-being between the different departments (Tolima and Caldas) and groups (affected and original populations).

The first part presents an analysis of livelihood transitions after the eruption. It looks at what people did before 1985 and how their livelihoods have changed over the years. This part presents an analysis of livelihood trajectories for the survivors of the town of Armero in the Tolima department and then of the residents of Caldas department affected by the disaster. The second part of this section looks at the trajectories in terms of property and access to services. This includes access to health, education and basic services. The last part of this section looks at well-being trajectories as understood by those who have experienced the impacts of the disaster.

5.1 Livelihood trajectories

5.1.1 Armero, Tolima Department

From different accounts and testimonies, it becomes clear that by 1985, Armero, a town of approximately 29,000 inhabitants, was a centre of development, commerce and agricultural production and played a vital role in the economy of the region. Due to its location in the crossroads of main communication routes and its growing agricultural production Armero gained size and importance and by 1985 its infrastructure was of considerable size and included 2 hospitals, 44 primary schools, 8 secondary schools and various court houses. It had more than 500 registered business and 124 industries in addition to services such as 5 banks (Paulsen de Cardenas and Cárdenas, 1998, Saavedra A., 1995). In terms of agricultural production, there were approximately 11,000 hectares of cultivated land that included crops such as sorgum, rice, cotton and maize (Paulsen de Cardenas and Cárdenas, 1998). Most of the survivors that have been interviewed coincide in describing Armero as a town with opportunities, a busy centre for trade where jobs were available.

There was a lot of commerce, tourism [...] you would see that shops were selling a lot of products, many people from different places went through Armero. It was an epicentre for business.

Female resident of Armero Guayabal (1) 11 May 2015²

In Armero you made money. If, for example, you had a food stall, you sold everything. There was a lot of trade, a lot of work...

Female resident of Lérída, (18) 19 September 2015

Data from the survey shows that before the disaster in 1985 Armero's residents were employed in different sectors (see figure 2 for those who resettled in Armero Guayabal and figure 3 for Lérída which correspond to question D1 in the survey questionnaire). The most common source of income was jobs in the private sector including jobs in restaurants, shops, factories and self-employed persons (carpenter, plumbers, etc). Agriculture was the second most important source of income, both directly in the fields producing crops such as cotton and rice or in processing these in mills. Jobs in the public sector, such as civil servant and teachers in schools, were also important.

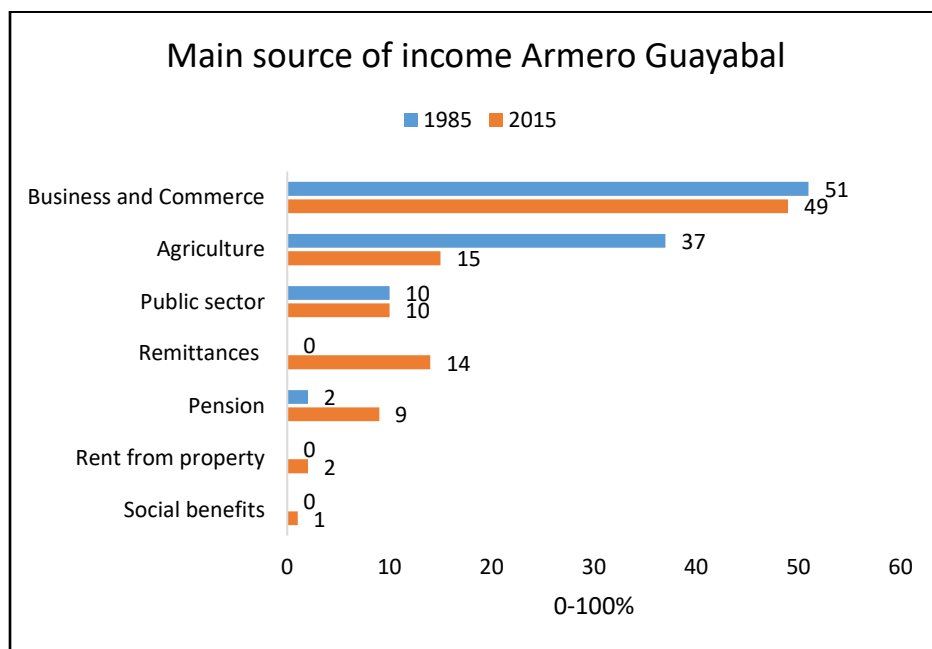


Figure 2. Main reported sources of income in Armero Guayabal in 1985 and 2015 (n=99 respondents).

² All quotes include a reference with a unique number assigned to each of the interviewees and the date when the interview was conducted.

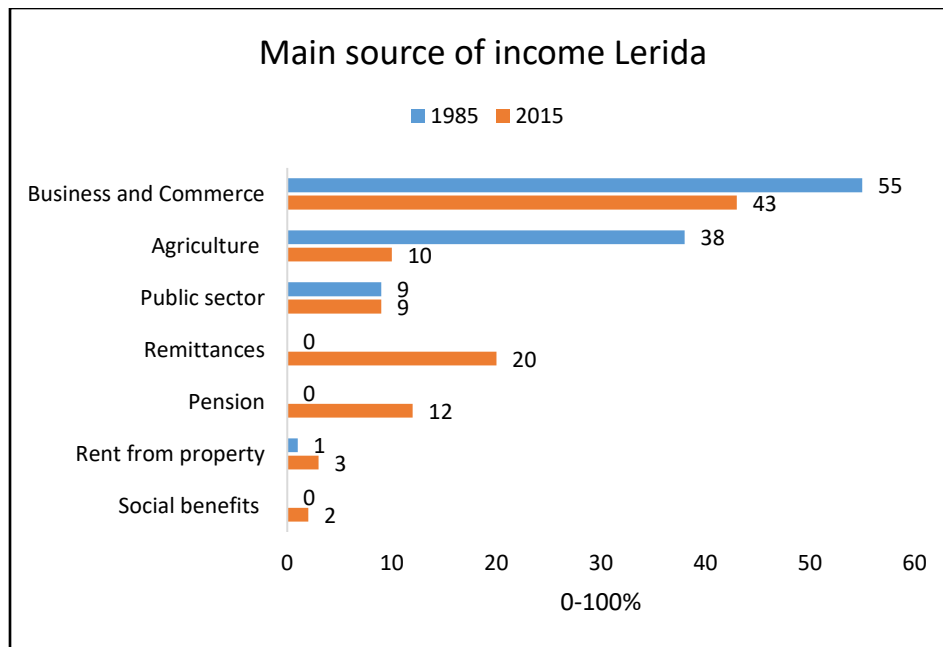


Figure 3. Main source of income Lérida in 1985 and 2015 (n= 126 respondents).

As a result of the disaster, livelihood trajectories took different directions. Each household, had to re-build and find new sources of income, while facing the challenge of having lost their homes and most importantly, family members, friends, neighbours and their town in general. In this context, the ability of a household to maintain or create a new source of income depended heavily on the type of employment they had before the disaster, access to resources and their social networks. Figure 4 reflects changes in the sources of income immediately after the disaster for all resettled households in Armero Guayabal and Lérida, Tolima (corresponds to question D.3). The majority either maintained the same source of income in a new location (41%) or generated a new source of income (37%). Nonetheless, 22% lost their main source of income and were not able to generate a new one.

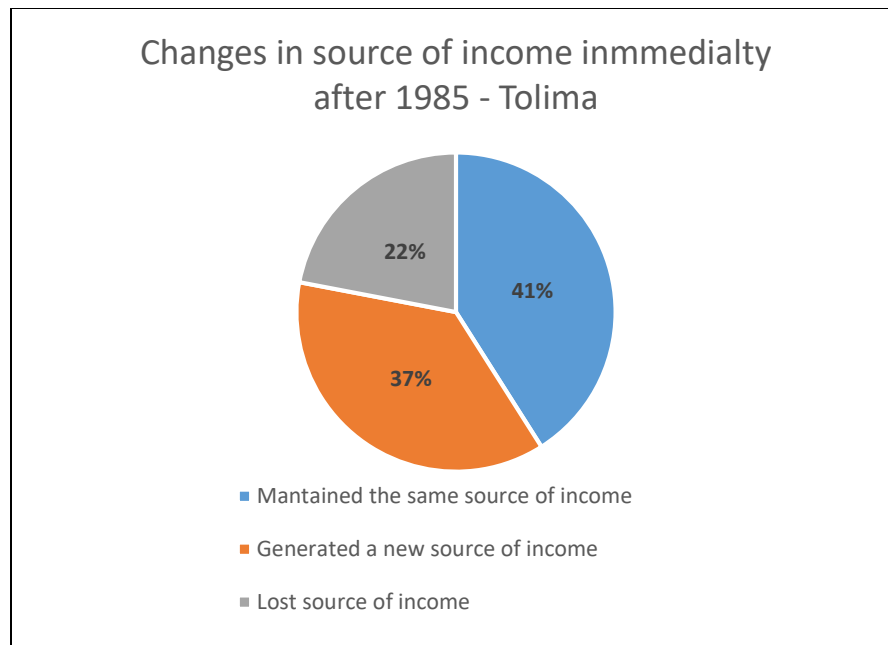


Figure 4. Reported changes in source of income immediately after 1985, Tolima Department (Armero Guayabal and L rida) resettled households (n = 225 respondents).

In the long run, as the figures for main sources of income show (2 and 3), changes in the sources of income were incurred particularly in the agricultural sector which seems to have been the most affected area after the disaster. While 37% of households that resettled in Armero Guayabal depended on agriculture before 1985, by 2015 only 15% did so. The change seems to have been more drastic for households that depended on agriculture and resettled in L rida where the percentage of households that listed agriculture as their main source of income went from 38% before 1985 to only 9% in 2015. Income sources from other sectors such as business and commerce remain important although there is a decrease here too, particularly in L rida. The greater importance that remittances and pensions have today for resettled households, both in Armero Guayabal and L rida, reflects, at least in part, the increasing age profile of the surveyed households.

When compared to the importance of different sectors in the economy of the department, it is possible to see that Armero Guayabal and L rida Municipalities have followed the general trends. The contribution of agricultural production to the department's GDP dropped from 42% in the 1980s to 27% in 2013, and the third sector or services and commerce have increased from 40% in 1985 to 50% in 2013. It has been noted that the turning point in terms of the economic trends of the Tolima Department took place as a result of the 1985 disaster and its aftermath (ICER, 2015). Even if the trends in importance of sources of income for Armero Guayabal and L rida seem to follow the general economic trends for the Department, the impact in the agricultural sector remains particularly significant for this area and needs to be understood in the context of other factors. For example, changes in land use as a result of the impact of the lahars but also the

fact that prime agricultural land was used to build houses in Lérída and Armero Guayabal after 1985 (Paulsen de Cardenas and Cárdenas, 1998). In addition to this and as result of the disaster, there was an important drop in investment in agriculture and processing mills in the area.

Data from the interviews contextualises the survey results and shows that households able to maintain the same source of income in the new location include people who had been employed in the public sector as teachers or civil servants at the municipality or other state related positions. In most cases, they were given jobs conducting the same task in the places where they relocated.

We were given again our positions as teachers here in Ibagué, we did not lose our jobs. The government kept paying us our salaries every month. Others though, were in deep trouble and depended on the monthly allowance given to the victims of the disaster'

Male resident Ibague (13) 16 July, 2015

Others, whose livelihoods depended on a skill or were employed in the private sector, were able to transfer their activity to the new place, for example, those working in banks or as mechanics. Additionally, some were able to change their activities, such is the case of a female interviewee (4) who had worked in the Municipality in Armero but when she moved to Armero Guayabal began working at the petrol station. The ability of people to change activity and generate new, sometimes innovative sources of income, became very important particularly immediately after the disaster. This was the case for many of those who survived, especially women, who turned to cooking and selling food informally to sustain their families in the first months after the disaster.

We were left without a thing, and when we arrived to Bogota after the disaster, we were allowed to stay in a house for free. With a friend of mine we began making tamales. At first we had to find the ingredients to make the tamales, then, after the first week, we had made enough money to eat during that week and to make a new batch of tamales. We lived like that for 6 months until we moved to Ibagué.

Female resident Ibague (10) 17 July, 2015

Those who were able to diversify learned new skills or began to conduct very different activities from before or simply changed their livelihoods.

I don't really remember after how many months I found a job, but it was when the Medics without Frontiers arrived to Ibagué. They arrived from France, Denmark and Holland to work at a medical centre. They set up a workshop to make prosthesis for all of those who had been left with disabilities after the disaster. The doctors were looking for people from Armero to employ at the workshop, and I went there to ask for a job. I worked there for more than 9 years and I learned to make all types of prosthesis, and all the necessary equipment for when a person injures or breaks a limb. I learned to make wheelchairs, crutches [...] then I learned to make orthopaedic shoes, and I also got some complementary training through the SENA (National Service for Learning). Then I moved to work at shoe making factory.

Female resident Ibague (15) 17 July 2016

Results from the survey complements these statements and allows to better understand some of the measures that households and individuals undertook to be able to generate new sources of income immediately after the disaster (question D.8). While 35% of households in Guayabal and 29% in L rida said they changed their activity, 33% and 29% noted that they asked for help from family or friends and 13% and 23% did not report any specific action.

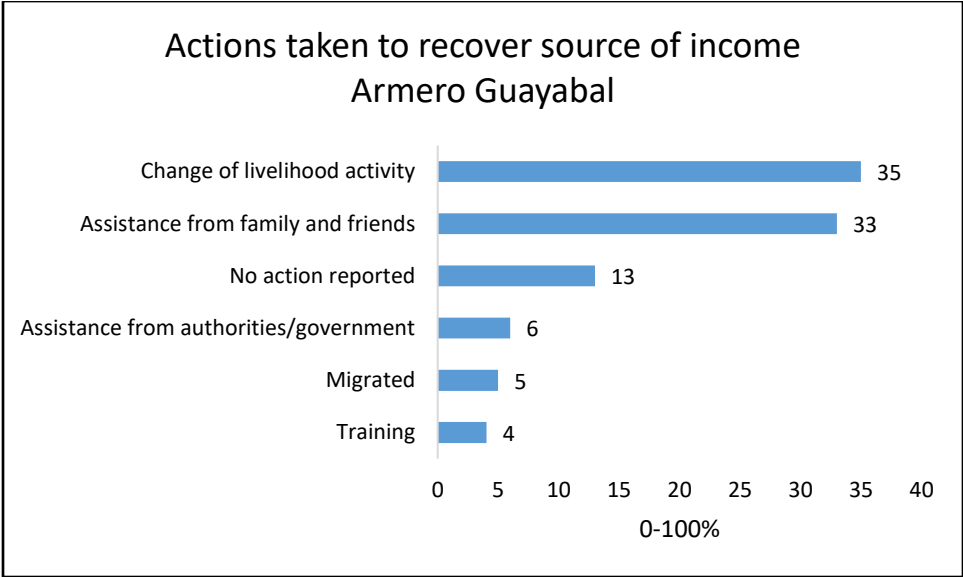


Figure 5. Reported Actions taken to recover source of income Armero Guayabal (n = 99 respondents)

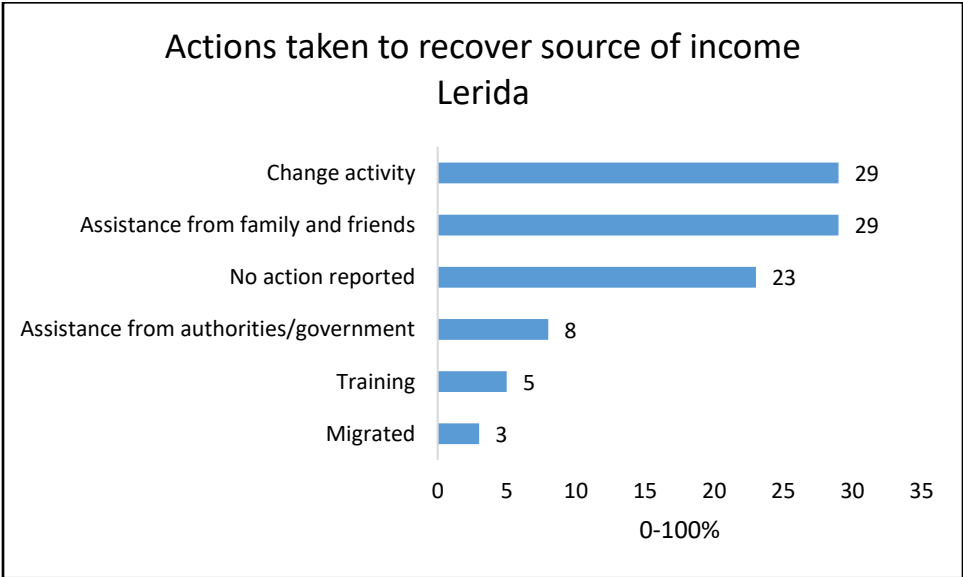


Figure 6. Actions taken to recover source of income, L rida (n=126 respondents)

Despite the fact that training was provided by different state and non-governmental organisations, particularly through the National Service for Learning (SENA) diversifying livelihoods proved to be a difficult task. In addition to training, small grants or credits were given to people. This proved useful,

especially at the beginning when many families opened small corner shops, or businesses. However, as a male resident from Armero Guayabal (5) explains below, with time, there were too many and most of those small businesses collapsed.

The Red Cross had a project to help those who had been Red Cross volunteers and had survived to start small business. So we were trained as bakers, and we opened a small bakery in Lérída but things got a bit difficult because there were about 25 bakeries in total, and for a small town it was too much competition. So in August 86 I moved to Armero Guaybal.

Male resident from Armero Guayabal (5), 12 May 2015

It seems that the group that struggled the most finding new sources of income were those who had been employed in agriculture. This group of people worked in their own land, were employed to work in someone else's land or in the establishments where cotton, rice and maize were sorted and processed. In addition to the fact that large sections of the arable land were covered by the lahars, the processing plants were destroyed and many of those who either had land or employed people in the sector died. The difficulties finding jobs in the agricultural sector still persist today. As figures 2 and 3 show, the percentages of those working in agriculture have dropped significantly between 1985 and 2015. Despite the fact that as part of the recovery programs many cooperatives were established where each farmer was given land, agriculture is not the main source of income in this area anymore. Most of those cooperatives have disappeared and today there are none left. Problems with managing the land, finding markets and general administrative issues pushed many of those who had received land to sell it to big landowners. Moreover, the agricultural sector in the area, which focused on cotton and maize never recovered the pre-1985 levels.

Perhaps the accounts from two survivors below (Box 1), one who is nowadays temporarily employed as a mechanic, and the other who used to work at a bank and today sells food, best exemplifies the extent to which people have had to change their livelihoods and the difficulties they have encountered in trying to find secure sources of income in the context of changes in the broader economy.

Box 1. Changes in livelihood trajectories

A male resident of Lérida (21) who is now temporarily employed as a mechanic explains his own and other people's livelihood trajectories:

Before [1985] I used to work at a factory that made equipment for processing sugar cane. We tried to do the same here [Lérida] but it did not work, so we had to find another way of surviving. I became a radio presenter, first at the radio station in Lérida, then at the 'La Voz de Ibagué' and 'La Voz de Honda', I looked for other pathways. Those who had had their own business had to work out 'in the sun' wherever they found something, others borrowed money to open their businesses again. But it was not the same because if you needed materials you had to go somewhere else to find it, because here you can't find it. Here there are few sources of employment, after the disaster there are no businesses, the biggest one is the rice mill 'Diana' and that is it. Not having jobs, and no sources of income is keeping our self-esteem low. Some work in the fields, some are construction workers others sell food such as 'arepas' or 'tamales' to survive.

A female resident of Mariquita (38) tells her story of changing sources of income in the context of limited employment opportunities in the area.

After the 'avalanche' [lahar] I got a permanent contract in the bank in Mariquita. But when computers began to take over jobs, there was a reduction in the employees and I lost my job. I left in 1994 as if it had been a bad omen, as if I had robbed the bank, because I never was able to find a job in an institution again. I have not been able to find a permanent job. Sometimes, and depending who is the politician in charge, I might be able to get some months of work. But here you have to survive making 'arepas', 'tamales' or working as a maid, whatever you can do, helper in a kitchen, anything, because here there are few sources of employment. Mariquita is a very nice town, I love this town, I have lived here for so long, but the truth is that it is hard to find jobs here. Here you must survive. Thanks to God I haven't had to steal from others, just work with this hands to find bread for everyday.

Overall, as it is explained in the quotes below, and in box 1, securing a source of income after the 1985 disaster has been a continuing problem for most households. Many have had to change activities several times and, for most, unemployment has been a recurrent issue over the years.

The hardest issue to confront has been the problem of unemployment. We only have one main source of employment, which is the rice mill. Here in Lérida there are no employment opportunities, only in the fields, in the coffee shops but the payment is not very good, only in the rice mill people are able to earn a minimum wage. The training given by the SENA was good for some who were able to generate a new source of employment. But what do you gain from training if the economy of the place does not generate more employment, and getting credit is very difficult?

Female Resident Lérida (23) 16 November 2015

Where are the Jobs? Or where are the business? No, there has not been any of that here. Our children have to leave, those who graduate from school, almost 100 a year, have to go elsewhere. They go because there is not much to do here [...] we have good and capable people, lots of young people with lots of abilities, but there are few jobs and study opportunities.

Male resident Guayabal (5) 11 May 2015

This was also confirmed by the survey results where 66% of all resettled households interviewed in Guayabal and 53% in L rida said that the single most important problem they encountered when trying to maintain or generate a source of income was the issue of limited job opportunities (figure 7 which corresponds to question D.7). In addition to that, absence of political leadership and psychological problems were also noted. 12% and 22% of households in Guayabal and L rida respectively did not identify any specific problems.

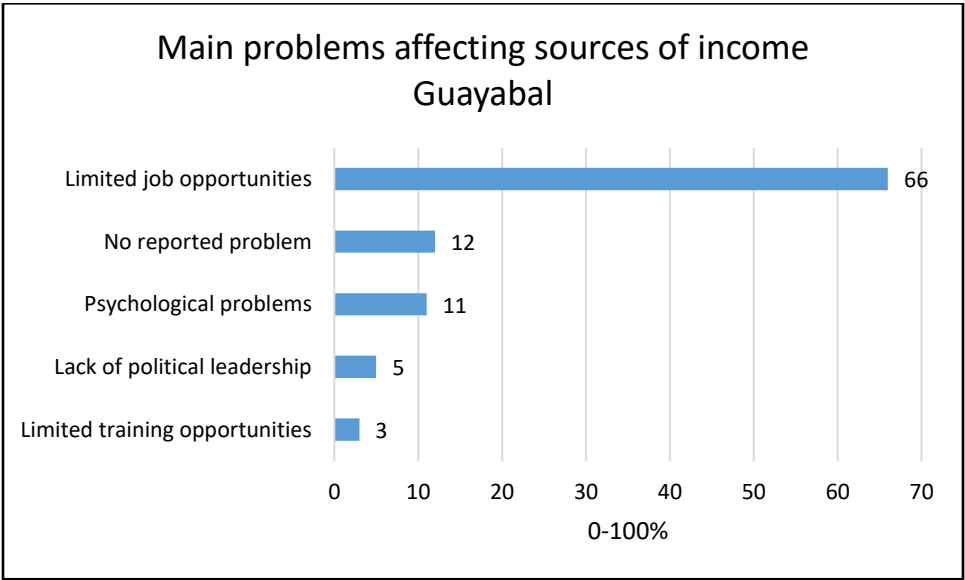


Figure 7. Main problems affecting recovery or generation of new source of income, Armero Guayabal (n=99 respondents).

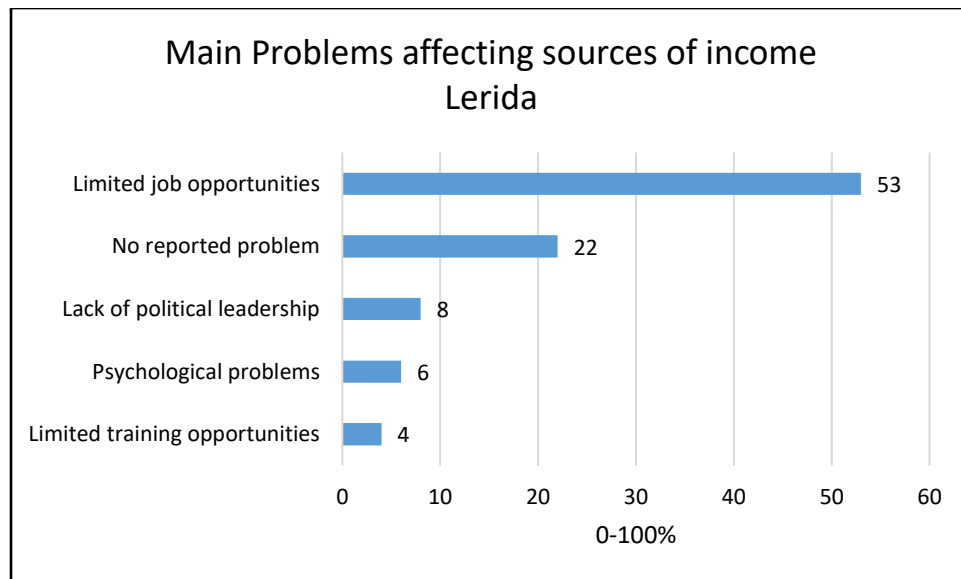


Figure 8. Main problems affecting recovery or generation of source of income, Lérida (n=126 respondents).

Livelihood trajectories and issues with securing sources of income were also reflected in the ability of households to cover their basic needs. As figure 9 below shows, in Armero Guayabal the percentage of households that reported that they are only able to partially cover their basic needs has increased from 40% before the disaster to 54% in 2015 (figure corresponds to questions D.2, D.4, D.6, D.11 and D.13). Additionally, there has been an increase in households that reported that they are not able to cover their basic needs from 7% to 11%. Note that immediately after the disaster this was reported as the case by 17% of households. Further, the percentage of households that reported that they are able to cover their basic needs has decreased from 9% to only 3%. Those that are able to cover more than their basic needs have also decreased from 43% to 32%. Overall, an important segment of households that reported that they were able to cover basic needs or more than basic needs has not reached the same pre-1985 levels and by 2015 the majority of households, or 53% were still reporting that they were only able to partially cover basic needs.

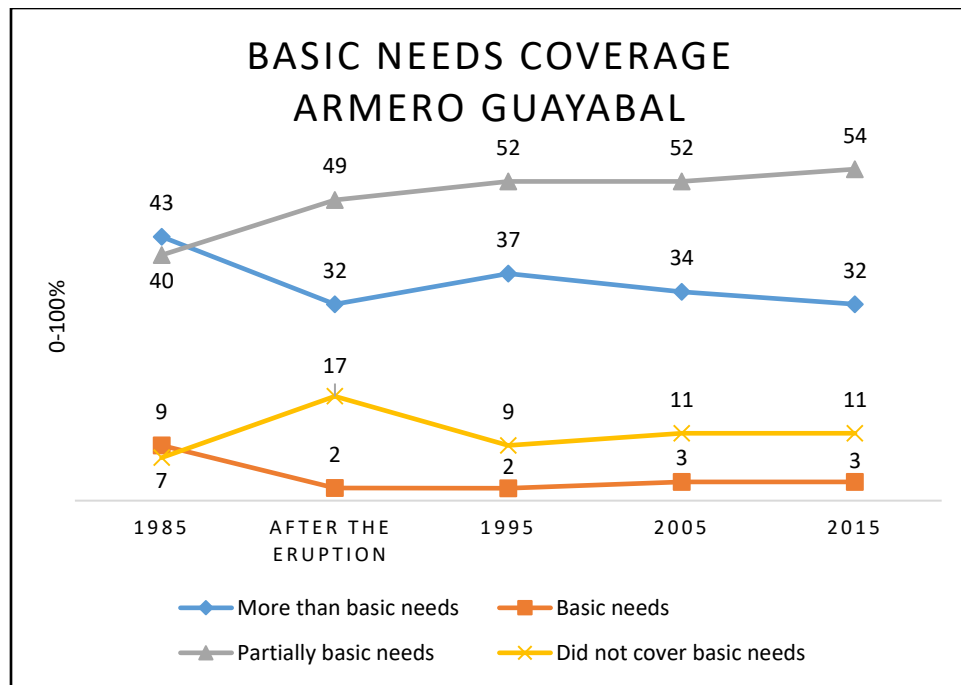


Figure 9. Basic needs coverage, Armero Guayabal 1985-2015 (n=99 respondents).

The trends follow similar patterns in Lérída but the percentages are different here (figure 10 which corresponds to questions D.2, D.4, D.6, D.11 and D.13). Most notably while before 1985, 26% of households reported that they partially covered their basic needs, by 2015 that number had risen to 46%. Further, the majority of households or 67% reported that they were able to cover more than their basic needs before 1985 but by 2015 the percentage had decreased to 46% of households. It is interesting to note that many households seem to have been able to recuperate from immediately after the eruption and cover their basic needs. Yet the numbers have not reached pre-1985 figures. Moreover, similarly to Armero Guayabal, the percentage of households that report they can partially cover or do not cover their basic needs has increased since 1995.

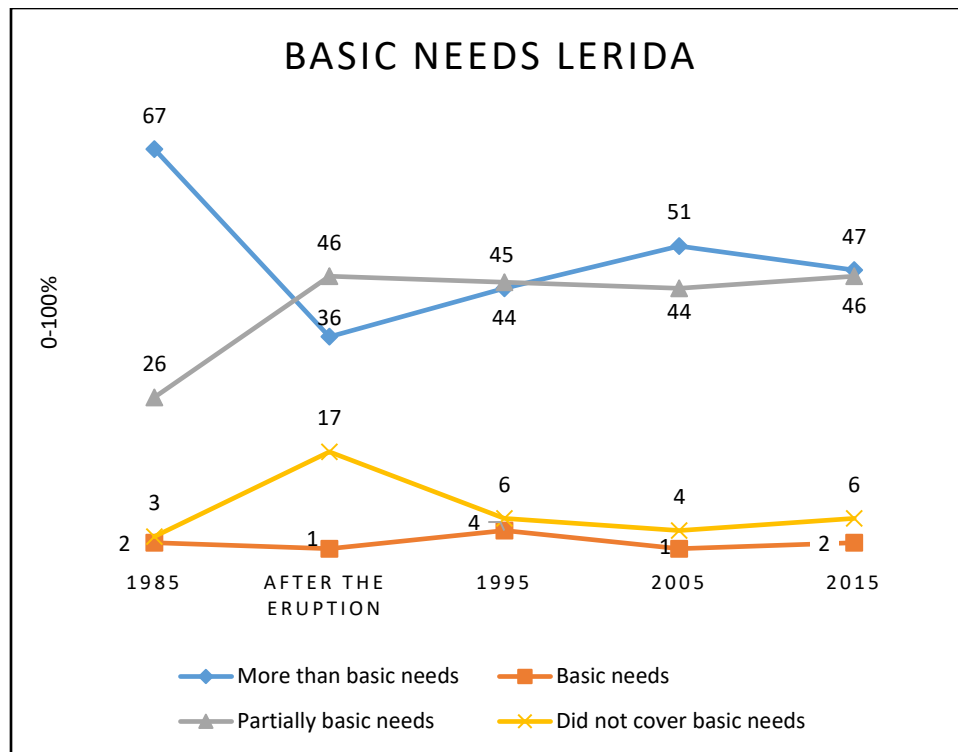


Figure 10. Basic needs coverage L rida 1985-2015 (n=126 respondents).

In contrast to the coverage of basic needs trajectories of the resettled population, for the ‘original population’ (figure 11) who lived in Guayabal or L rida before 1985 the percentages of households in different categories remains almost the same. There have been slight increases in the percentage of households that reported to only partially cover their basic needs from 45% to 49% and a decrease in households that cover more than their basic needs from 49% to 44%. Although similar patterns are observed for this group in L rida and Armero Guayabal, the change is much more significant for the resettled population (figures 9 and 10). Drawing conclusions as to the exact reasons behind these trends is not necessarily possible from the available data but comparing the resettled and original populations illustrates the extent of the impact that the 1985 eruption has had on the resettled households. In short, while the reported levels of basic needs coverage has not changed for the original population, for the resettled households both in Armero Guayabal and L rida the changes are more significant.

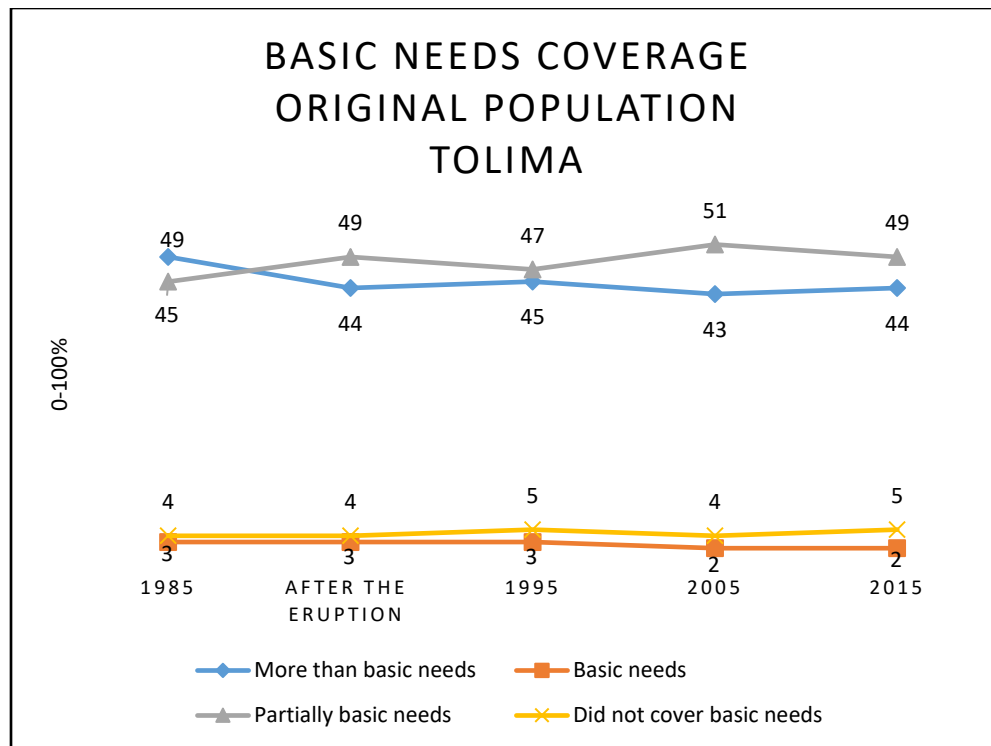


Figure 11. Basic needs coverage original population in the Tolima Department (n=140 respondents from Armero Guayabal and Lérída).

5.1.2 Livelihood trajectories in Caldas Department

The aftermath of the disaster and the impact it had on the residents in Caldas Department was also severe. People were left without their homes, families were broken up and livelihoods destroyed. Residents in the affected areas in Caldas also changed their sources of income. Agriculture which was the most important activity before 1985 has dropped significantly and even higher percentages than for Tolima were reported in the survey. Small scale mining in the river continues to be an important source of income and by 2015 almost 10% of homes depended on it. The key to the differences with Tolima Department lies in the starting point, or what people were doing before the eruption. Unlike Armero, which was an urban economic centre, the settlements affected in the Caldas Department were generally small agricultural communities on the edge of the river Rio Claro. Most of the people who lived there worked as temporary workers in coffee farms nearby or elsewhere in Colombia as seasonal agricultural workers.

We used to pick coffee in the large farms, others were mining in the river for sand, that is why the neighbourhood that was built next to the river was first called 'Miners' and then la 'Primavera'. The farm where many of us worked was very productive, about 750000 pounds a year of coffee. So we lived from the river and the farms.

Male resident Nueva Primavera (45), 18 June 2015

This was also reflected in the survey results where 85% of households reported that agriculture was their main source of income before 1985.

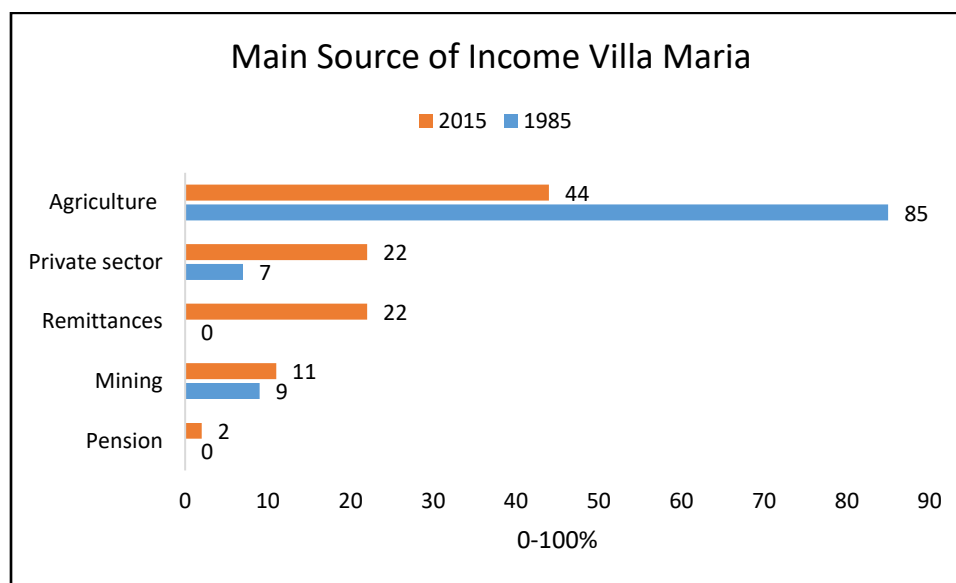


Figure 12. Main Source of income Villa Maria Municipality (respondents from Nuevo Rio Claro and Nueva Primavera n= 46)

After the disaster, the Colombian government established the Resurgir programme to coordinate and channel funds from foreign and local donors for reconstruction. In all the resettlements in Caldas, and as part of the provision of houses in higher ground away from the river, Resurgir purchased private land which was given to the survivors to be administered as a cooperative. Each household, in addition to a house in the resettlement became member of the cooperatives run by the community. This meant that many of those who had been landless before the disaster became members of a farmer's cooperative with access to agricultural land where coffee and other crops were grown. Residents in the new resettlements, at la Nueva Primavera and Nuevo Rio Claro received training and support to run the cooperative for a number of years. Although at first the cooperative in Nueva Primavera did well, with time members who wanted the cash or did not want to work in the cooperative began to ask for the land and other assets owned by the cooperative to be divided amongst the members. The land was divided and only a few of the original residents of Nueva Primavera work in their own plots of land today. In Nuevo Rio Claro, the cooperative, which in this case focuses on sugar cane, has not been divided but members have sold their share of land and today there are only 12 families running it. This was reflected in the survey where although the percentage of households that depend on agriculture as their main source of income is still high, at 44%, it is much lower than before 1985. However, it is not possible to relate the change entirely to the disappearance of the cooperatives. Changes in the sources of employment might be closely related to transformations in the agricultural sector, specifically a drop in commercial prices of coffee in the late

1990s and early 2000s which have impacted the sector and as a result jobs have also been lost elsewhere in the region (Dube and Vargas, 2013).

Nowadays, many of the resettlement's residents travel to the nearest city, Manizales, to work on a daily basis. This is one of the explanations for the increase in jobs in the private sector from 7% to 22%. This includes jobs such as working in shops, construction workers, domestic workers and self-employed as drivers. In the same way as with resettled households in Tolima, remittances have become important sources of income for many households. Family members that live and work elsewhere send money back to residents of Nueva Primavera and Nuevo Rio Claro. As with the case in Tolima, the population that experienced the disaster has aged while the economy has changed and therefore households depend on remittances and pensions much more than before. In addition, and similarly to the case of Tolima, finding secure jobs in the resettlement sites is difficult for young people, and many have to move to the city to find jobs.

The problem we have here is that we must go out to find jobs, here there are no jobs. What we have is not reliable. In the river you work for a week and sometimes you can earn 50.000 pesos and other times 400.000 pesos, but that is not every day. During the coffee harvest you can make good money but otherwise as temporary agricultural worker 'jornalero' you only earn a small daily fee.

Male resident from Rio Claro (44) 8 May 2015

For the resettlements sites in the Caldas Department, Nuevo Rio Claro and Nueva Primavera the trends in terms of coverage of basic needs are different to those in Tolima. Unlike the case of Tolima, and despite the high number, the percentage of households that reported only to partially cover their basic needs has decreased from 70% before 1985 to 57% in 2015 (figure 13 corresponds to questions D.2, D.4, D.6, D.11, D.13). Additionally, an important increase in households that cover more than their basic needs was reported, from 13% in 1985 to 24% in 2015. Although small, an increase in households that are not able to cover their basic needs from 13% to 17% was reported. Note that immediately after the eruption the number of households that reported to be able to cover more than their basic needs increased so did the number of households that were not able to cover their basic needs. Data from the interviews helps contextualise this information and shows that families living in the areas affected by the lahars in the Caldas Department were economically deprived and as a result of the disaster some were able to gain access to resources, training and aid that allowed them to improve their quality of life. More on this topic will be discussed in section 5.3 on recovery and wellbeing.

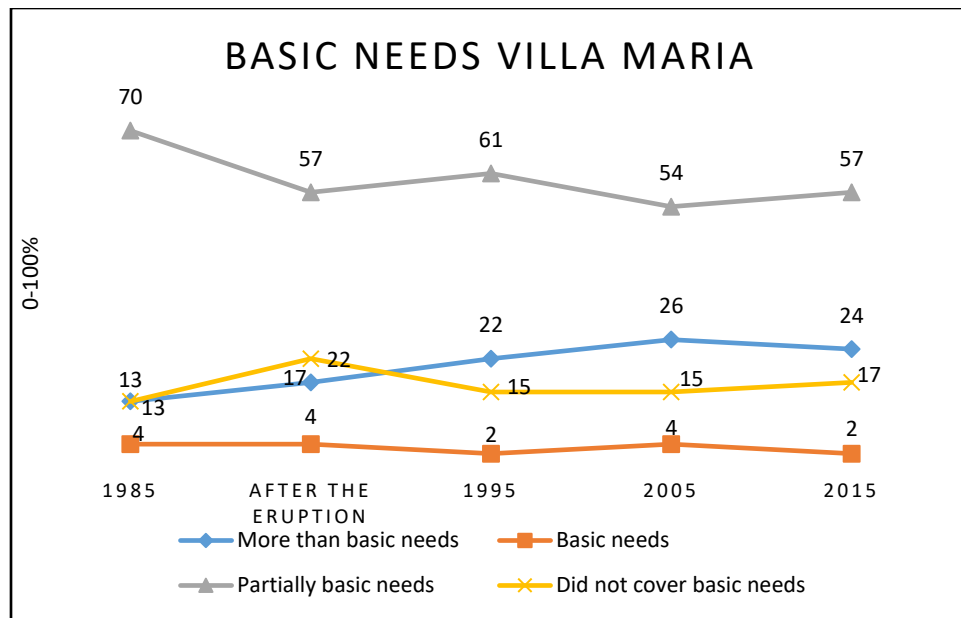


Figure 13. Basic needs coverage Villa Maria (n=46 respondents).

5.2.1 Housing

After the disaster, the rebuilding process focused on providing homes for the thousands of survivors who were left without homes in Tolima and Caldas Departments. Through the Resurgir programme the two largest resettlements, in Lérída and Armero Guayabal, were built. Although Resurgir oversaw the project, some neighbourhoods in these sites were built by other donors (Paulsen de Cardenas and Cárdenas, 1998). Such is the case of the resettlement sites in Caldas which were built on land bought by Resurgir but the houses were built with funds from Antioquia Presente, an organisation from the Department of Antioquia, in the North West of Colombia. The Catholic Church and other religious groups also built many neighbourhoods in Tolima including houses in Lérída, Guayabal, Mariquita and Ibagué. As a result, it is possible to see distinct architectural styles in the different neighbourhoods built in the different sites. This also meant that some of the homes were larger than others were, were built with different materials and had more or less space in the front and backyards.

To qualify for any of these programmes, each family had to prove that they had been affected, get a card from the Resurgir confirming this, and then sign up for one of the neighbourhoods. This was not always a straightforward process and many of those who had been interviewed believe people who were not affected by the disaster, or who did not live at the time in the affected areas, were able to get homes in the resettlement sites, while people who were affected did not have access to them. Receiving the homes took a long time and people lived in temporary accommodation for up to 3 years. As figure 14 below shows, people lived in shelters, tents, rented or family homes and some even stayed in their old homes if they had

not been destroyed as a result of the hazards produced during the eruption (figure includes valid responses for resettled homes in the Tolima and Caldas Departments and corresponds to question B.3).

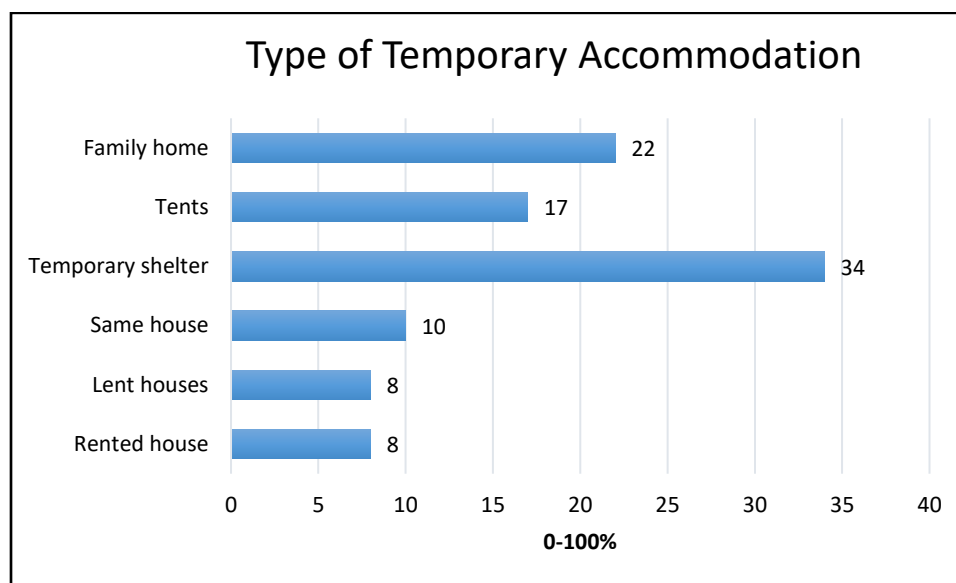


Figure 14. Type of temporary accommodation after the disaster (n= 269 respondents)

While some of the homes were built by the donors and given to each family once they were ready to move into, interviewees from the resettlements claimed that most were self-built by the beneficiaries, with provided materials. In the case of the self-built homes, each family had to contribute with a pre-determined amount of work hours, either in building a specific house or in the project as a whole. Homes were allocated at the end of the process. This was the case for both the sites in Caldas and for some of the sites in Lérída and Armero Guayabal.

Everyone had to work, everyone had to contribute with their time, it took us 16 months to finish the houses, if a person did not contribute, then it will take them longer to get their house. There were 5 blocks in total and each one had a foreman that worked with the house owners. After 16th months they gave them to us with windows and doors. There were 68 houses in total.

Female resident Rio Claro (42) 7 May 2015

The house we have was self-constructed, I had to work every Saturday and Sunday to help build it. Since I did not know much about construction. I had to help bend the iron for the house bases and the columns, to move bricks. I had to do all of that. The houses were not given to us as a present, we had to work to obtain them. Perhaps other neighbourhoods were built by the donors, and houses were allocated to each family through a draw, but we had to work.

Male resident Armero Guayabal (4), 11 May 2015

Some families, particularly those who were the poorest before 1985, reported that obtaining their own house and owning property for the first time has allowed them to make some important improvements to their wellbeing. This is the case of a female resident and her family who received a resettlement house in

the upper areas of the Villa Maria Municipality in a small neighbourhood called Papayal where families were also given land.

The change is big, because the house we got is much bigger, with all the services, it is closer to the road, closer to the school, it is a very good house and it has 3 hectares of land. [...] I think that what happened, unfortunately, benefited many families, while others lost everything, their families, but thanks to God we did not.

Resident of Villa Maria Municipality (52), 28 July 2015

One of the most visible improvements for many families, particularly those in Caldas Department, was receiving a home constructed with durable and strong materials. As figure 15 shows (corresponds to question B.1), for the majority or 61% of the affected residents in Villa Maria the houses where they lived before 1985 were made out of wood or mixed mud and wood, which are less durable and generally perceived as materials of less quality than cement. The change in type of material was less significant for the resettled residents of the Tolima province where the vast majority or about 85% reported that they already lived in houses constructed in cement before 1985 in Armero.

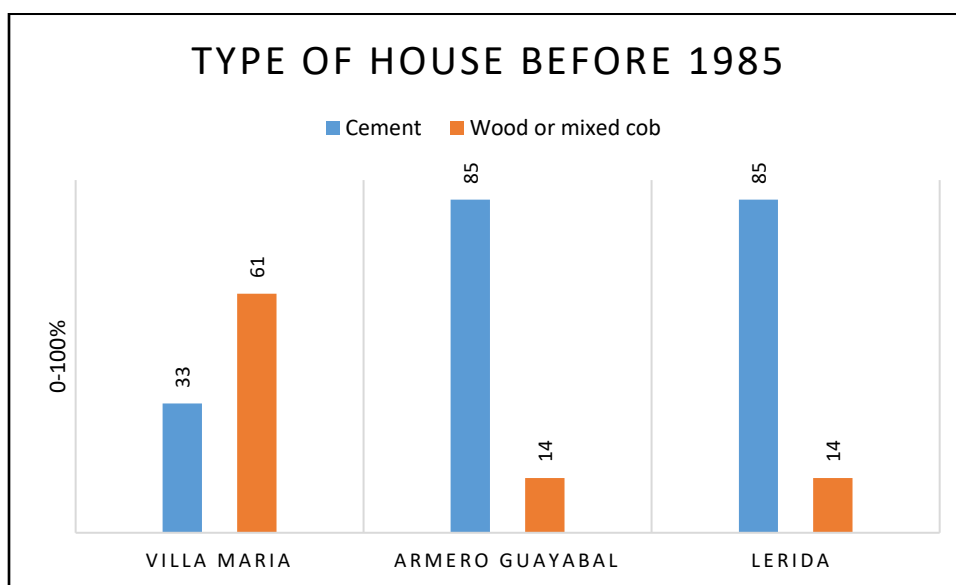


Figure 15. Type of house before 1985 (Villa Maria n=46, Armero Guayabal n=99, Lérída n=126 respondents)

Basic homes, made of wood and mud were common for many of the families that lived in Rio Claro and Primavera until 1985.

The majority of the houses were made of mud and bamboo, there were lots of poor people living there. I was about to build mine with materials that I had been collecting from different places, from old houses and from what the river brought. I had bricks and wood and was getting ready to build my own house when the 'avalanche' [lahar] destroyed everything.

Male resident from Nueva Primavera (40), 7 May 2015

Overall, as the figure 16 below shows (corresponds to question B.15), while an overwhelming majority of residents in Villa Maria or 96% reported that the house where they lived in 2015 was better than the one they had before 1985, for those who lived in Armero and moved to the resettlements in Armero Guayabal and L rida, the results are mixed. 34% of households in Guayabal and 47% in L rida reported in 2015 that the houses where they lived were of inferior quality than the ones they had before. Further, 47% in Guayabal and 44% reported their houses were better than before. This is one of the factors that influences the resettled populations experience and perception of quality of life in the long run (see section 5.3).

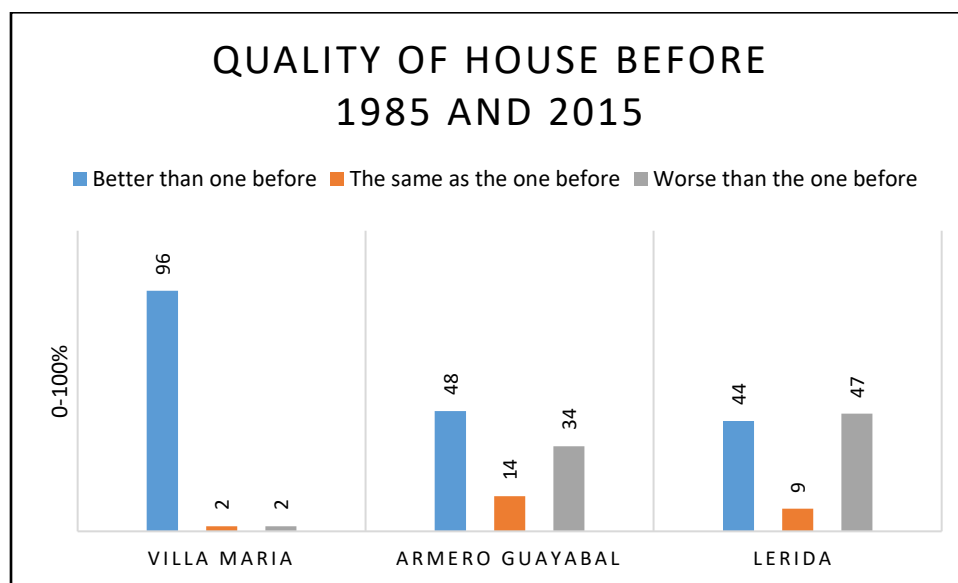


Figure 16. Quality of house before 1985 and in 2015 (Villa Maria n=46, Armero Guayabal n=99, L rida n=126 respondents)

For those who have been able to secure sources of income over the years, improvements to their resettlement homes have been done.



Image 4. Nuevo Rio Claro. Photo by Anna Hicks

Approximately half of the households said they have made improvement over the last 30 years. They have changed the floors, built new rooms in the houses, redecorated, made improvements to the outer spaces of the houses or the house porches and gardens (where due to the hot climate people spend considerable amounts of time).

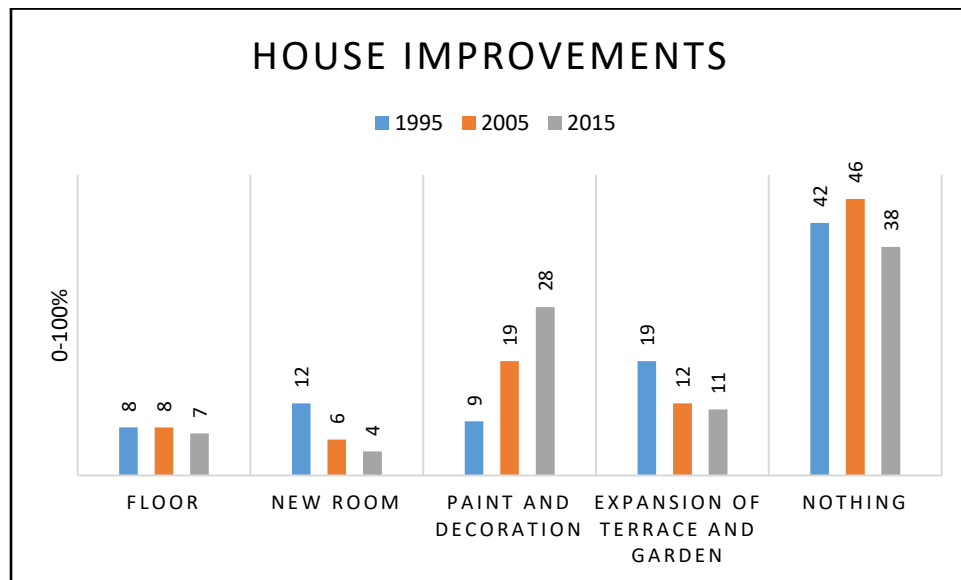


Figure 17. House improvements for resettled households in the Caldas and Tolima Departments 1995, 2005 and 2015 (n= 269 respondents)

Yet, as figure 17 shows, some families have not been able to make improvements to their resettlement homes (question B.8, B.11, B.14). Moreover, given the limited access to jobs and sources of income many families who resettled after the 1985 disaster, have had to sell their property and move elsewhere in search of jobs.

It is a bit sad to think that many of the people who built these houses sold them and had to leave because of the economic situation here. They left looking for opportunities. It is only a few of us who started the project that are left.
Female resident Lérída (26) 16 November 2015

Many sold their homes. This was one of the mistakes that they [government] did, to build and build houses and not worry about building businesses, so many people sold their houses because, what were they going to do here? What were they supposed to eat? They had to leave and search for something else.
Female resident Armero Guayabal (1) 11 May 2015

Today many people who were not affected by the volcano have moved into the resettlement sites. Both in Caldas and Tolima, people have bought them as holiday homes and travel from the cities of Manizales or even from Bogotá to spend time in these places. This is the case particularly for Nuevo Río Claro in Caldas where out of the almost 70 families that originally moved there when the resettlement was first built, there are only 14 left.

5.2.2 Access to services

Access to services such as water, electricity and education has for the most part maintained the same levels as before 1985. In general, people reported to have access to all services in all the resettlement sites, however water quality and access is a problem in Nueva Primavera, Caldas, where they only have intermittent access to water. This was reflected in the survey where more than 80% of households interviewed in Villa María said they don't have access to potable water (figure 18 corresponds to questions E.1 and E.3). This is because in addition to only having intermittent service, the little water they have access to, is not potable or treated water. Results from the survey show that according to the interviewees, access to water in Guayabal and Lérída has in fact improved slightly from pre-1985 figures, but in Lérída access is not universal. Access to electricity in their homes and primary education was reported to have improved throughout and by 2015 almost 100% of households in the three municipalities said they had access to these services (figures 19 and 20 correspond to questions in section E of the questionnaire).

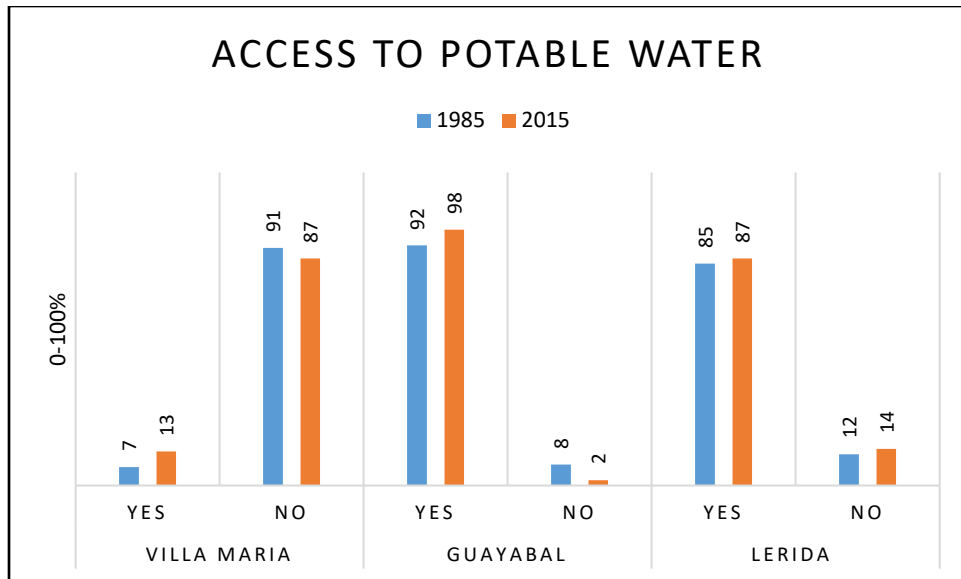


Figure 18. Access to Potable Water 1985 and 2015 (Villa Maria n=46, Armero Guayabal n=99, Lérída n=126 respondents)

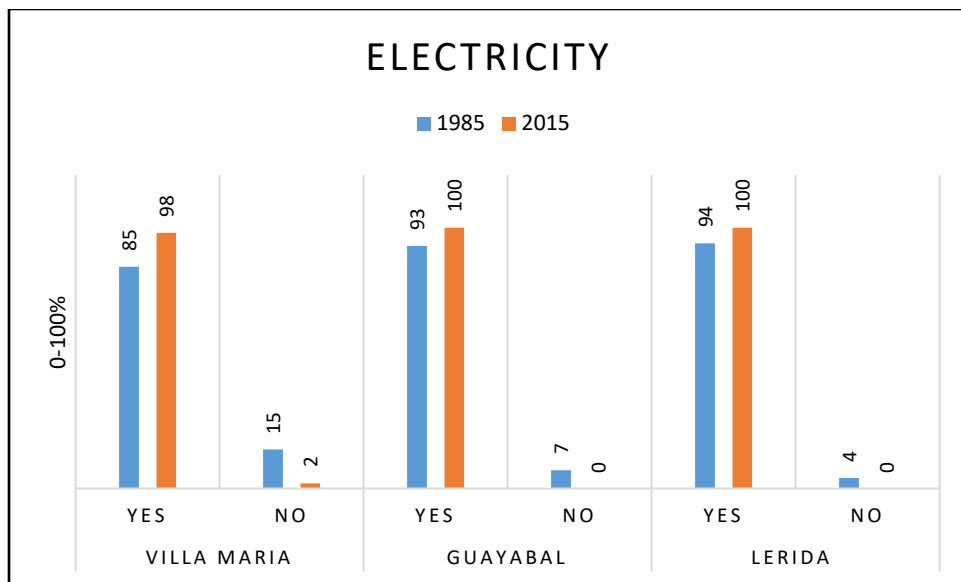


Figure 19. Access to Electricity 1985 and 2015 (Villa Maria n=46, Armero Guayabal n=99, Lérída n=126 respondents)

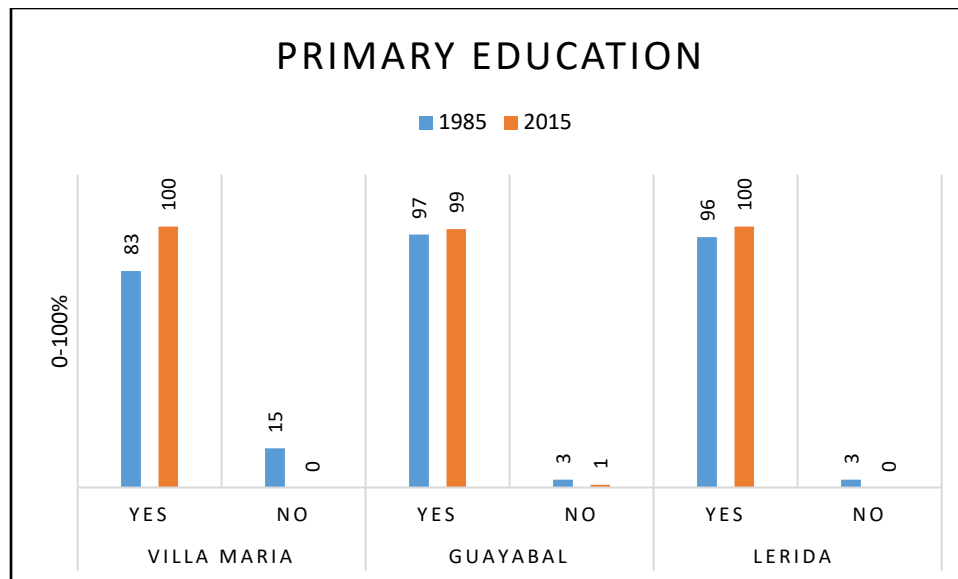


Figure 20. Access to Primary Education 1985 and 2015 (Villa Maria n=46, Armero Guayabal n=99, Lérída n=126 respondents)

These results were confirmed in the interviews where people explained that when they moved to the resettlement sites most of the houses had water and electricity connections. In a minority of cases these were installed some years after, but today all resettlements, except for Nueva Primavera (where water quality and continuous service are an issue), have secure access to water and electricity. Schools were also built in all the resettlement sites and reflect the survey results (figure 20).

5.3 Dynamics of Recovery

The ability of an individual, a household and a community to recovery after a disaster of the magnitude of what happened to the inhabitants of Tolima and Caldas in 1985 depends on a range of factors. Access to assistance, social networks, secure livelihoods, training, and community cohesion are some of the issues that have influenced the capacity of household to recover in the long term in Tolima and Caldas. This section presents a discussion of how people perceive the changes brought by the eruption and its aftermath more than 30 years ago and explores some of the factors that have allowed (or not) communities and individuals to recover from the disaster in the long term. The analysis looks at recovery processes as mediated by a range of different factors and considers these processes as socially differentiated. To that end we present a detailed analysis of basic needs coverage trajectories (1985-2015) and contextualise it using the information on livelihoods, access to services and housing discussed earlier.

For most people we have talked to during this research process, recovery cannot be explained as a general interpretation of a number of variables or factors, such as losing the homes or family members. The disaster

and the recovery processes are experienced in the context of having lost an entire way of living (or having gained access to resources that were not available before). As a result, while some individuals and households might consider that they have been able to recover in some ways, they might still struggle in other aspects of their lives.

People from Armero were left very sad as a result of the tragedy, because losing your city, losing all your family that is not an easy thing, you can't forget it from one day to the other.

Male resident Ibagué (13), 16 July 2015

It takes a long time to recover. It took something like 10 years, it is very hard to move on after what happened. We were organised in Armero, we had a cosmopolitan town, everyone knew each other, Armero was a prosperous town, the mayors did positive things for the town, there were jobs, it was a town with a good economy, and there were 5 or 6 banks. Here, in Lérida two banks have already left, and maybe one more is about to leave. So what do we expect from this town, we just hope that this town improves one day.

Male resident Lérida (27), 16 July 2015

Have I been able to recover? Psychologically no, I always think of what happened in Armero. Perhaps socially and work wise I have recovered. I am working now and I am studying and writing a thesis for a course I got through the SENA. Still jobs are hard to come by here.

Female resident Lérida (18), 19 September 2015

5.3.1 Basic Needs Trajectories

In order to better understand recovery trends the survey included questions on coverage of basic needs for each household on 10 year intervals starting before the eruption in 1985 until 2015. The responses to these questions are based on people's recollection and perception of basic needs coverage overtime and are therefore taken as an indication of their views and experiences and do not represent actual monetary values. Based on these responses we have conducted statistical analysis to explore the relationship between coverage of basic needs and other variables such as problems with recovering sources of income, housing (access, improvement and ownership) and perception in the quality of life. To that end, the dataset for the resettled population was divided in to two groups based on household coverage of basic needs prior to the eruption in 1985:

group 1- covered basic needs before 1985 (n=147: combination of survey categories 'covered' and 'more than covered')

group 2 - did not cover all basic needs before 1985 (n=122: combination of survey categories 'partially covered' and 'did not cover')

Table 3. Resettled population by location and coverage of basic needs group

	Villa Maria	Armero Guayabal	Lérída	Total
Group 1 Covered in 1985	8	52	87	147
Group 2 Did not cover in 1985	38	47	37	122
Total	46	126	124	269

These two groups were then used as the dependent variables (question D.2) to compare with other variables (results from other questions) in the survey. The aim of this exercise is to better understand how social differentiation - underlined by socio-economic status, geographical location, (exposure to hazards) and access to entitlements and resources – influences the recovery processes and the dynamics of vulnerability to volcanic hazards in the long term. The following set of figures (21-25) present data first for all the resettled population surveyed, and subsequently for the resettled population surveyed in each municipality.

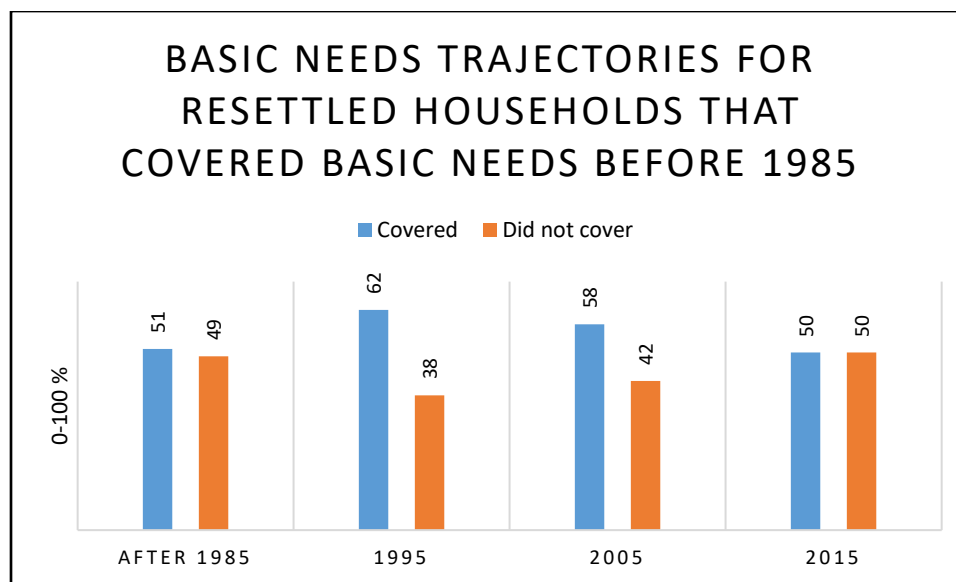


Figure 21. Basic needs coverage trends for resettled households that covered basic needs before 1985.

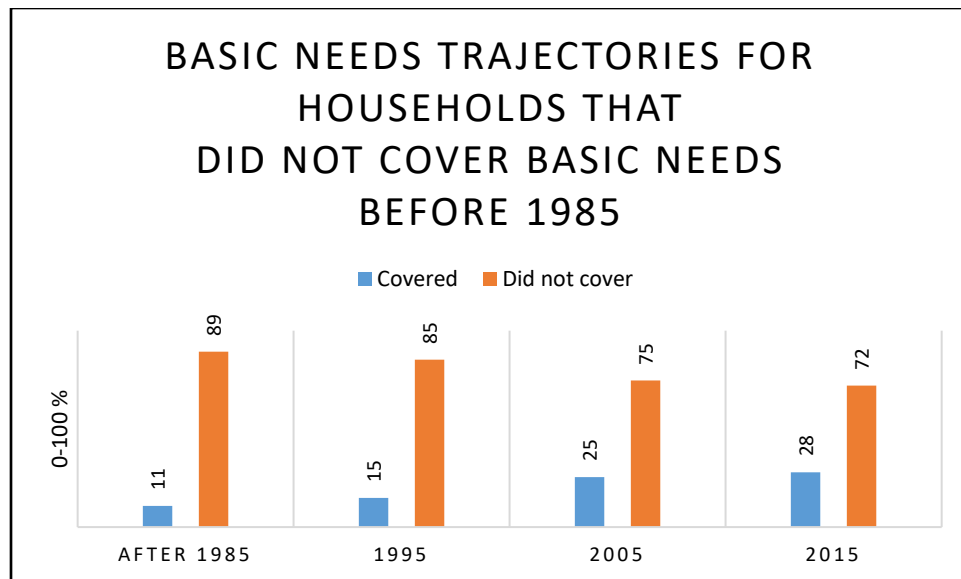


Figure 22. Basic needs coverage trends for resettled households that did cover basic needs before 1985.

The results show a mixed story of impact and recovery, about 50% of the households who reported that they were able to cover their basic needs before 1985 have not been able to recover fully while the other half have been able to recover or maintain their level of coverage overtime (figure 21 compares results for question D.2 to D.4, D.6, D.11 and D. 13). The trends are also mixed for those who were not able to cover before the eruption and the majority have not been able to fully cover their needs in the past 30 years. However it is important to note that the percentage of households who reported that they have been able to move from not covering to covering their basic needs has increased over the years and by 2015 it was almost 30% (figure 22).

The difference between municipalities is also reflected in terms of the problems encountered by households to maintain or recover their source of income after 1985. For Villa Maria (figure 23) the most significant finding is that the majority of households who were not able to cover before 1985 still struggle to cover basic needs (figure 23 compares results for question D.2 to D.4, D.6, D.11 and D. 13). Note that for Villa Maria the number of households that reported that they were able to cover their basic needs before 1985 is very small and the comparisons should be made with caution.

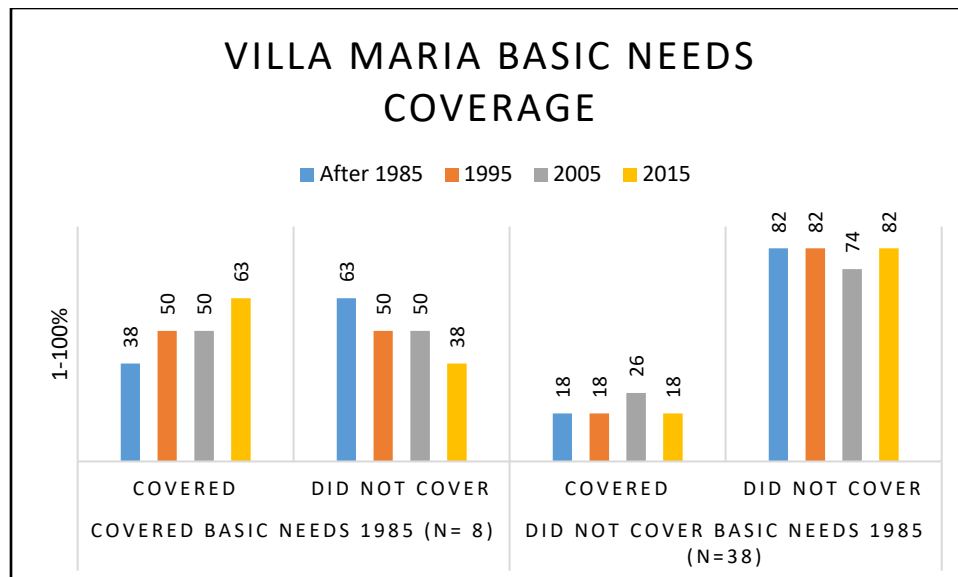


Figure 23. Basic needs coverage trends for resettled households that covered and did not cover basic needs before 1985 in the Municipality of Villa Maria.

In Armero Guayabal out of the households that reported that they were able to cover their basic needs before 1985, only 42% said they were able to cover their basic needs by 2015. Even if there is a slight decrease in households that were not able to cover their basic needs before 1985 that still were unable to cover their basic needs by 2015, the percentage was high at about 72% (Figure 24).

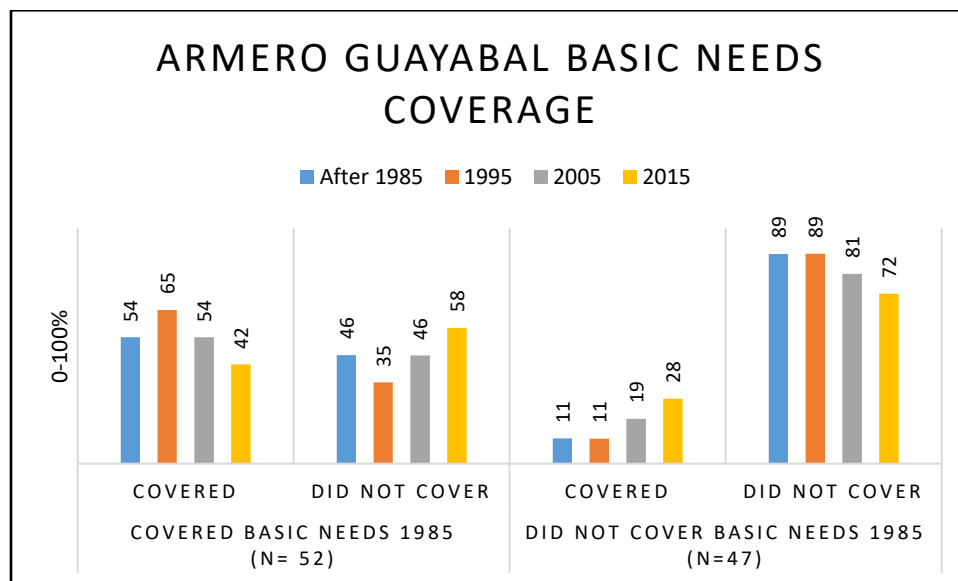


Figure 24. Basic needs coverage trends for resettled households that covered and did not cover basic needs before 1985 in the Municipality of Armero Guayabal.

While in Villa Maria the majority of households reported that they were not able to cover basic needs, in Lérída, the majority or about 70% were able to cover their basic needs before 1985 (Figure 10). However, by 2015 only about half of those households reported that they were able to cover their basic needs (figure

25). Of those who were not able to cover before 1985, about 60% reported that they were not able to cover by 2015.

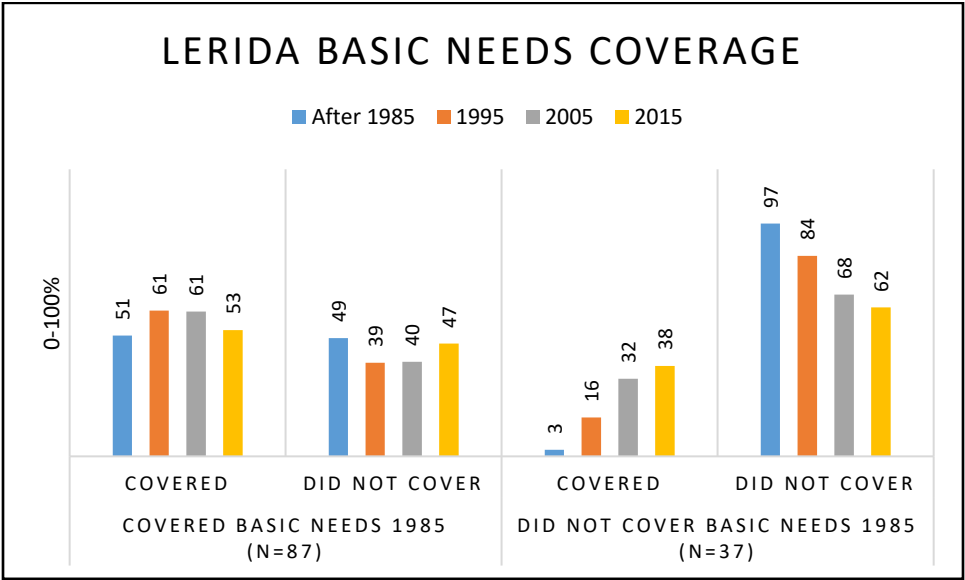


Figure 25. Basic needs coverage trends for resettled households that covered and did not cover basic needs before 1985 in the Municipality of Lérída.

The basic needs coverage trajectories presented above for different groups (for those who covered or did not cover basic needs before 1985) provide information on the general recovery trends for all households, showing both dynamics and inertia. However, they do not entirely explain why some households were able to recover and others not. The next section presents survey and interview data that helps understand this rather mixed recovery trajectory for households who experienced the disaster in 1985.

5.3.2 Factors affecting recovery

In most of the interviews, workshops and meetings conducted in Tolima and Caldas Departments, the single most important aspect influencing recovery that was mentioned and highlighted by local residents was access to sources of employment. As discussed in the section on livelihoods above, the ability of individual households and even of the resettled communities as a whole to recover has been defined by access to employment in the resettlement sites. This was also reflected in the survey where, when asked to choose the most important external factor that prevented or affected the household’s ability to recover sources of income after the eruption, 40% of resettled households chose limited employment opportunities. Drug addiction and common crime were also reported as factors hindering recovery

according to 19% and 7% of resettled households respectively (figure 26 corresponds to question D.7 in the questionnaire).

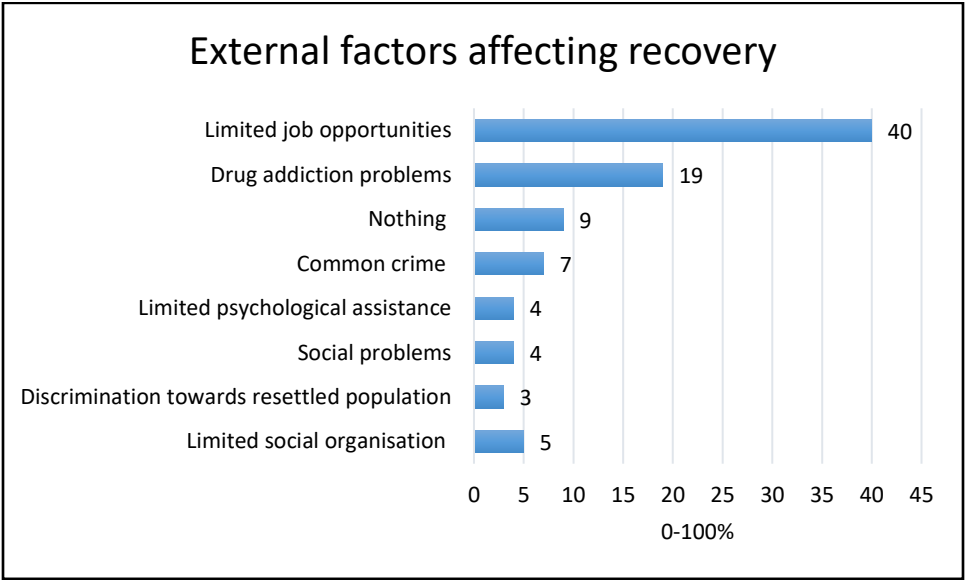


Figure 26. External factors affecting recovery (n=269 respondents)

We also analysed survey results for the two groups (covered and did not cover basic needs before 1985) in terms of their responses to problems generating/maintaining sources of income (question D.7) and external, community issues, affecting their recovery (question I.2). Figure 27 shows that for both groups, the main factor affecting income source generation after 1985 was limited job opportunities. However, a slightly higher percentage of households that covered their basic needs before 1985 chose limited job opportunities as the main problem than for the group that did not cover. With the available information is not possible to explain this difference but it could be related to job mobility and the actual source of livelihood.

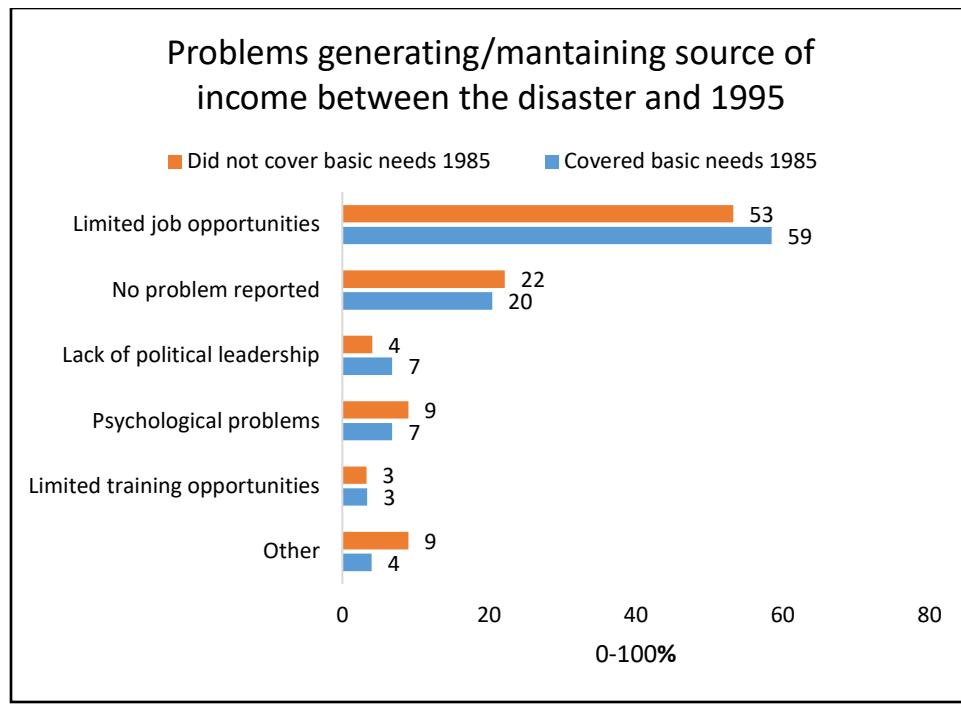


Figure 27. Problems generating/maintaining source of income between the disaster and 1995 based on coverage of basic needs before 1985 (group 1 'covered' n= 147 and group 2 'did not cover' n= 122)

The problems noted in terms of community issues affecting recovery by both groups again follow similar trends (figure 28 corresponds to question I.2). While the percentages of respondents who noted limited jobs, common crime and general social issues are higher for the group that covered basic needs before 1985, the percentages for drug addiction, limited social organisation and limited sense of belonging were higher for the group who did not cover basic needs before 1985.

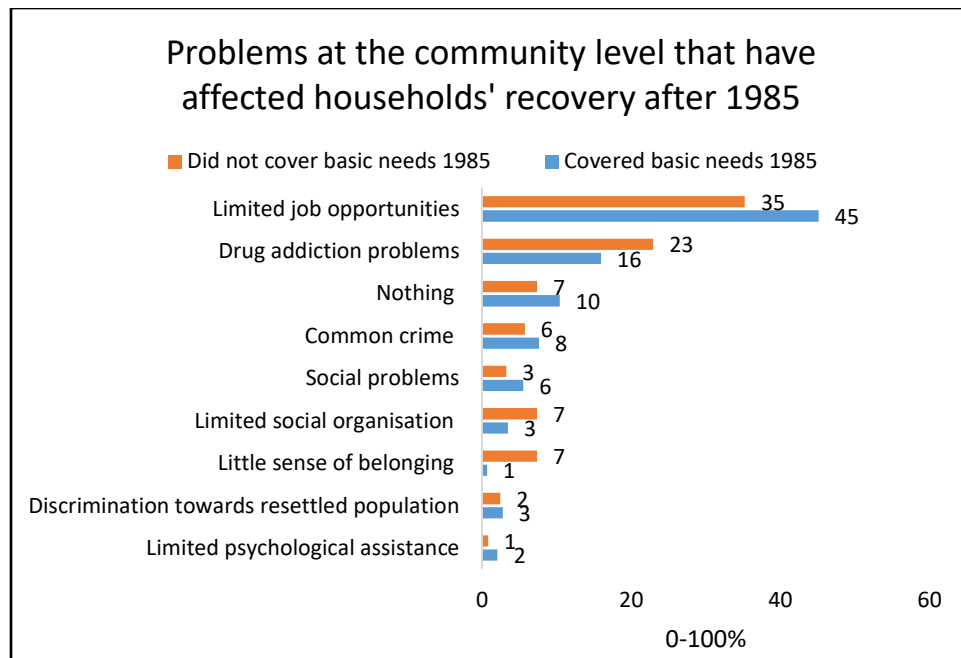


Figure 28. Problems at the community level affecting recovery based on coverage of basic needs before 1985 (valid responses: group 1 'covered' n= 144 and group 2 'did not cover' n= 122)

Limited employment opportunities was also a recurrent theme in the interviews and workshops carried out in these communities. In the interviews many mentioned that although they did receive a house, not having a secure source of income has not allowed them to recover completely.

It is very difficult, because although you have a house you don't have a job. Many times there are no jobs and you suffer because there is no employment. I have never had a permanent job, I only work through temporary contracts running agricultural machinery [...] It is having a stable job that allows you to improve, otherwise, you can go down to the bottom, because you don't have income.

Male resident Lérida (28), 16 November 2015

It is not all about having a house, people don't live off the walls. It is important to generate employment for people, and until this day there are limited opportunities. What we are missing here are businesses, factories, and each day we are poorer because people don't have anything to live off.

Male resident Guayabal (2), 11 May 2015

While in the survey, limited employment opportunities, drug addiction and common crime were listed as amongst the most important issues affecting recovery, psychological problems and loss of family and friends were highlighted in various interviews and workshops as significant issues. A female resident in Guayabal explains in the next passages that looking for lost family members and the general shock of the first months deeply affected individuals, families and communities. Looking for lost family also affected people's ability to request for assistance in the first months after the disaster and has remained a major constraint for many until today.

Many people got what they could [assistance], but some others who were looking for their loved ones, were completely destroyed, finished, and disoriented. The only hope was to find family members that had been lost, that became our priority. While we looked for our families we lost our 'heads' we lost all the senses. In that process, many people who did not need it, got stuff, and those like us who were left standing naked, got nothing. Both my husband and I lost all of our families. I do not wish that to happen to anyone. It is the worst thing that has happened to us.
Female resident Guayabal (20), 19 September 2015

The shock of the disaster still affects people, and until today, some suffer psychological problems, which have prevented their individual recovery, and in many cases that of their household.

I was affected psychologically for a long time, I still feel bad when it rains, when there are storms and if we lose electricity I get very worried, I can't sleep. Now that the volcano is active again, I have installed internet to be able to get reports all the time, I get them directly from the Volcano Observatory. I have a mobile phone, and since I work for the Red Cross I have a radio and get updates through them. I can tell you that the experience we had, I don't wish it to anybody. That is why I always go to the training and information meetings about the volcano, to be informed, so that we are prepared and never again experience a tragedy like the one we lived here.
Male resident Guayabal (4), 11 May 2015

5.3.3 Factors supporting recovery

Survey results show that external factors or activities in each community that have helped households recover include community celebrations, social organisation and access to economic support (see figure 29 corresponds to question I.1). However, it should be noted that 38% of households said that no specific action or activity in the community had supported their recovery.

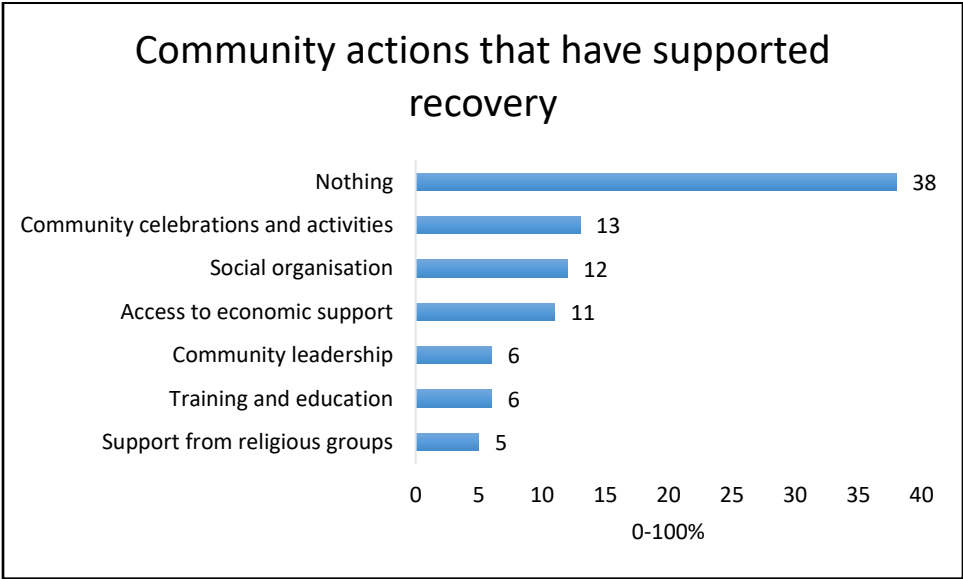


Figure 29. Community actions and activities that have supported household recovery (includes all resettled homes interviews n= 271)

When comparing the factors at the community level with the two basic needs groups, it is possible to see that for those that did not cover their basic needs before 1985, all external factors included in the question were more important than for the group that was able to cover basic needs before 1985. Moreover, 42% of households that covered their basic needs before 1985 said that no community activities supported their recovery (figure 30). This is 10% more than those that did not cover their basic needs 1985. From this results we might be able to infer that households who did not cover their basic needs before 1985, tend to rely more on community resources and cooperation than those who were able to cover their basic needs before 1985.

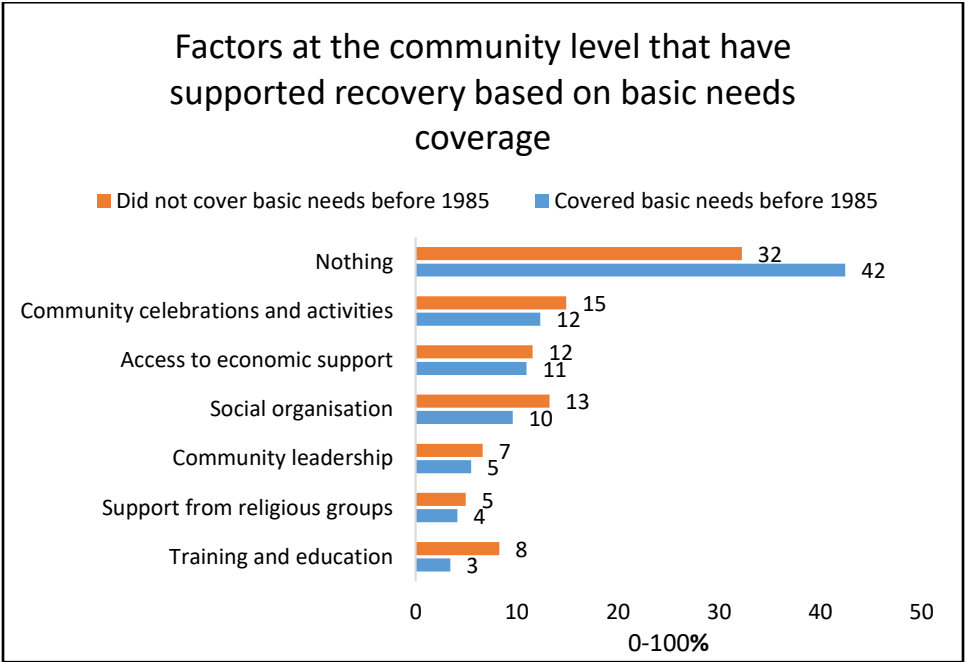


Figure 30. Community actions and activities that have supported household recovery and basic needs coverage trends (valid responses: group 1 ‘covered’ n= 146 and group 2 ‘did not cover’ n= 121).

In addition to the options listed in the figures above, during interviews and meetings, people also expressed the importance of family bonds in the recovery process. Losing family members was a major shock for many households, yet building new families and forming new bonds in the new resettlements sites has been at the core of the recovery process for many. Knowing people, building a family, being part of a community, has been very important.

Unfortunately, the tragedy arrived and it finished us, in 15 minutes Armero was destroyed. My wife lost her husband and three children; I lost my wife and son. We then met here, got married, and rebuilt our lives. Today, we are dedicated to loving each other and to caring for each other until we die.
Male resident Guayabal (2), 11 May 2015

You cannot compare your family to anything else; the most important thing is your family. So much so that I can say that here I have more than what I had in Armero. God has blessed us immensely with my job, which has allowed me to look after my children. I sell avocados in the market. That is the nicest thing about this town, its people, here everyone

has helped me and through my husband's and my effort we have been able to set up a small restaurant and here I am. The people in this town are good; they took us in and helped us.

Female resident Guayabal (20) 19 September 2015

Thanks to God, I did not lose my job. I was a teacher. We had the option to move to Ibagué but we decided to move here, because there we would have suffered as we did not have any family there, we would have been unknown and alone. Here in this town we had family, my wife's mother lived here, and my mother lived here. We had friends and family. Still, even if we were able to get help, it was hard to recover, we suffered a lot, because to come up again from down below is very difficult.

Male resident Guayabal (4), 11 May 2015

5.3.4 Quality of life

In addition to questions around recovery at the household and community level discussed above, the survey also included a question about quality of life. Asking about quality of life, allowed each individual or household to make a statement about what, in their view, has been their own livelihood trajectory. Each person made a judgement of what, for them, has influenced their quality of life at different points in time, before and after 1985. Figure 31 shows that there are some important differences between Tolima and Caldas Departments in terms of perception in quality of life (corresponds to question H.1). While 48% of the resettled households in Guayabal and 44% in Lérica who resided in Armero before the disaster said that they were most satisfied before 1985, only 15% of those in Villa Maria said the same for before 1985, when they resided in the riverbanks of Rio Claro. In contrast, 54% of households in Villa Maria considered that their quality of life was better in 2015, compared to 24% and 25% for Guayabal and Lérica respectively.

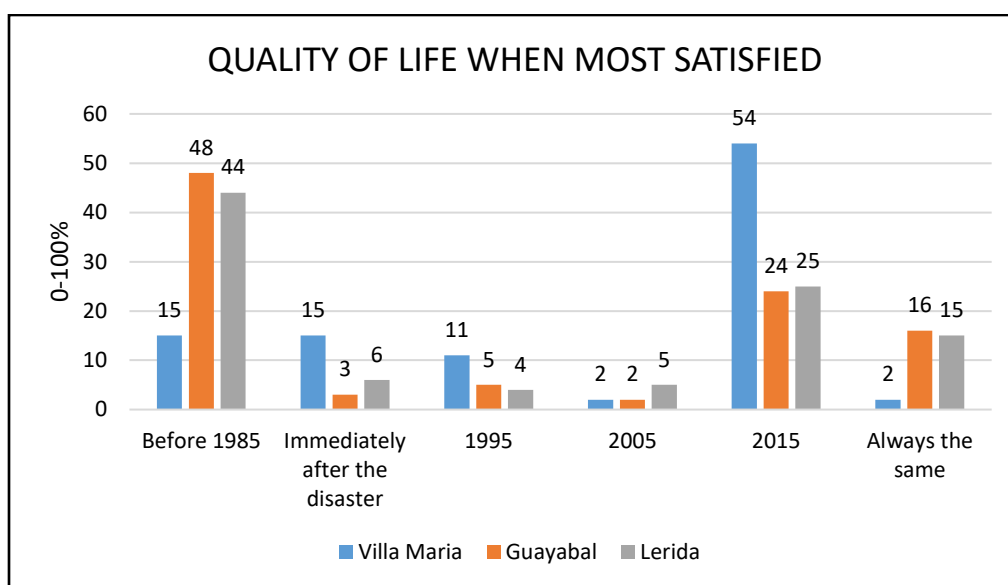


Figure 31. Quality of life when households were most satisfied (Villa Maria n=46, Armero Guayabal n=99, Lérica n=126 respondents)

What we see in the different municipalities is that there are differentiated trajectories of recovery in terms of quality of life. Only explaining this difference by looking at trends in coverage of basic needs is not sufficient. Figure 32 below (corresponds to question H.1) and BOX 2 shows that coverage of basic needs does not always equate with satisfaction in quality of life, particularly if we look at the trends per municipality (figure 33).

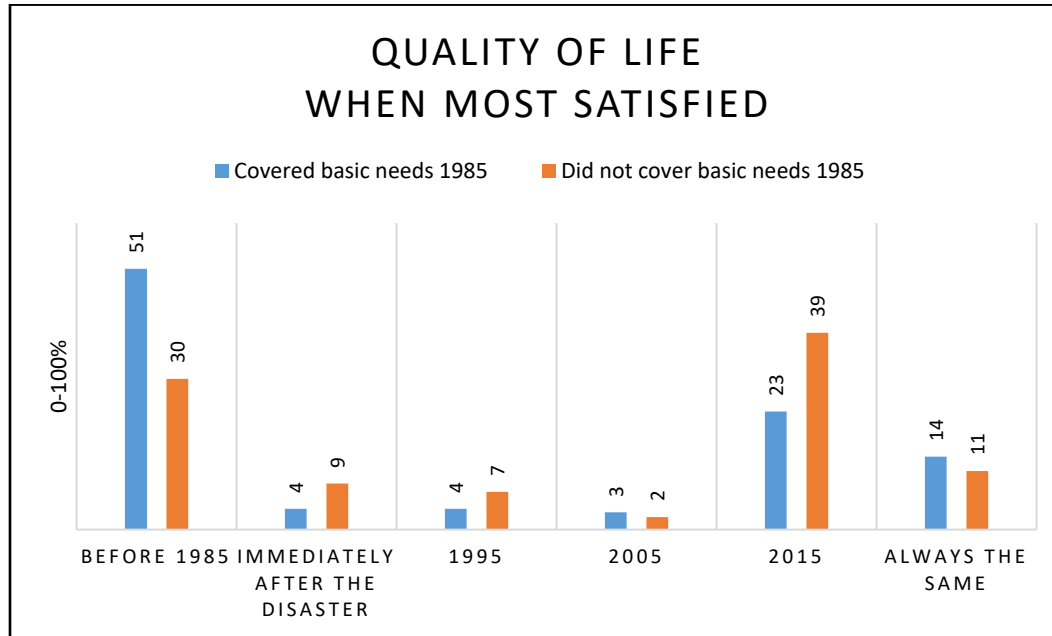


Figure 32. Quality of life and coverage of basic needs (valid responses: group 1 'covered' n= 147 and group 2 'did not cover' n= 122)

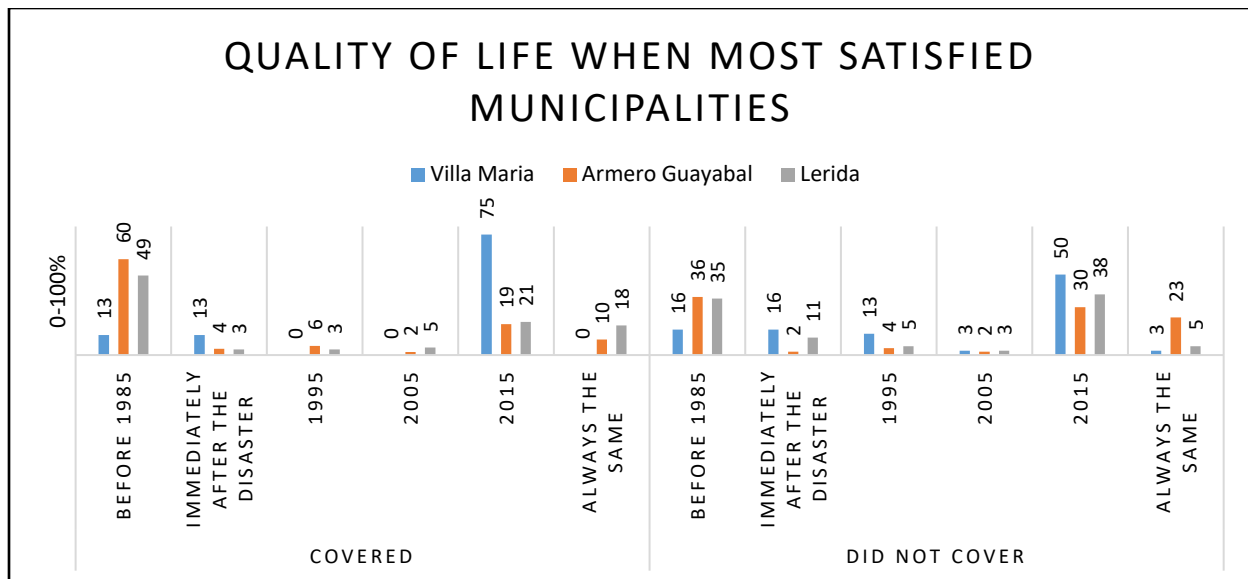


Figure 33. Quality of life and coverage of basic needs per municipality

(see table 3 for numbers under each group, covered and did not cover before 1985 for each municipality).

Quality of life for the group that covered their basic needs before 1985 is relatively high for before 1985 for the Armero Guayabal and Lérída Municipalities, 60% and 49% respectively. This would intuitively make sense as this is the time when their basic needs were covered and they lived in Armero. However, for the Villa Maria Municipality, 75% of the households that were able to cover before 1985 were mostly satisfied in 2015. As noted earlier, the figures for Villa Maria should be interpreted with caution given that the number of households that were able to cover before 1985 in this municipality sample was very small (n=8).

For the group that was not able to cover the percentages are more mixed. While 50% of this group for Villa Maria were most satisfied in 2015, only 30% and 38% in Armero Guayabal and Lérída were most satisfied in 2015. In this same group, 36% in Armero Guayabal and 35% for Lérída were most satisfied before 1985. This shows that despite the difficulties in covering basic needs, other factors, possibly family ties, sense of belonging, made these households consider their quality of life was better in 1985.

Box 2. Basic needs and quality of life trajectories

Household (9) from Armero Guayabal, interviewed 3 July 2015

This household resettled in Armero Guayabal from Armero. They were most satisfied with their quality of life before 1985 (before the disaster occurred). In Armero they lived in their own house. Immediately after the disaster, they moved into a rented house until 1987 when they received a house in the resettlement, which, according to their view, was worse than the house they used to live in before the disaster. They also consider that after all these years and despite changes and improvements they have made to property, the house they live in now is worse than the one they had before 1985. The main source of income before 1985 was agriculture in their own land, it covered the basic needs of the household. After the eruption, they maintained the same source of income but it only partially covered their basic needs. By 1995, they had a new source of income but this was not sufficient to cover the household's basic needs. In 2005, they maintained the same source of income and as before, it was not sufficient to cover all their basic needs. By 2015, the household relied on the same source of income, which came from farm work/labourer (jornalero) and was not sufficient to cover the households' needs. In 2015 this household had 4 members, out of which 2 were within the economically active age.

Household (16) from Armero Guayabal, interviewed 3 July 2015

This household, originally from Armero, resettled in Armero Guayabal after the disaster. They were most satisfied with their quality of life before 1985. In Armero they had their own house and consider that the house that they got after the eruption, was better than the house they had before. They have made changes to this house, which includes improvements into the communal areas and consider that it is better than the one where they lived before 1985. Their main source of income before 1985 was in commerce in the private sector. This source of income allowed them to cover their basic needs. After the eruption they were able to generate a new source of income which allowed to cover their basic needs immediately after the disaster and until 1995. By 2005 they had maintained the same source of income but it was no longer sufficient to cover their basic needs. In 2015 their main sources of income remained the same, and were agriculture in their own or rented land and work in commerce as self-employed. As before, these sources of income were not sufficient to cover this household's basic needs. In 2015 this household had 5 members out of which 4 fell within the economically active age.

Household (102) from Lérida, interviewed 11 July 2015

This household resettled in Lérida and were originally from Armero. They considered that their quality of life was better before the disaster occurred in 1985. They owned their house in Armero before 1985. The house they received after the disaster was the same quality as the one they had before 1985. They still live in the same house they received in 1986, but they have not made any major improvements to it. However, overall they consider this house is better than the one they had before 1985. Their main source of income before 1985 was a job in the public sector, which covered their basic needs. Immediately after the disaster in 1985, they lost their main source of income, and as a result, could not cover their basic needs. By 1995, they had generated a new source of income, which allowed them to cover their basic needs. By 2015 they had generated a different source of income, public transport, which allowed the household to continue covering their basic needs. In 2015 this household had 12 members, 7 within the economically active age.

Household (246) from Villa Maria, interviewed 30 June 2015

This household moved into one of the resettlements built in Villa Maria in 1986, and considered that their quality of life was better in 2015 than before the disaster in 1985. In 1985 they lived in a house they borrowed from somebody else. The house they received after the disaster was better than the one they occupied before. Over the years, they have made changes to this house such as improvements to the communal areas, patio and garden and have added rooms. Their main source of income before 1985 came from farm work, which only partially covered their basic needs. The same source of income was maintained immediately after the disaster until 2015 when, agriculture in own or rented land became their main source of income. Despite the changes in the source of income, over the years, they have only been able to partially cover their basic needs. This household is composed of 7 members out of which 4 fall within the economically active age, and there are 3 children.

Box 2 shows some households that have improved their coverage of basic needs since 1985. We also compared the two groups (covered and did not cover before 1985) to house quality before and after the disaster. Figure 34 below shows that for both covered and did not cover before 1985 in Armero Guayabal and L rida the majority of households reported that they lived in a house built with cement before 1985. In other words most households in Armero, the town destroyed in 1985 because of the eruption, lived in houses built with cement. In contrast to this, in Villa Maria, about 60% of households in both groups (covered and did not cover basic needs before 1985) lived in houses built with wood and or mixed cob before 1985. In Villa Maria the research was conducted in rural areas where houses tend to be built with wood and cob (traditional technique that employs mud to build walls), and this does not necessarily mean low quality housing. However, from the interviews it is possible to conclude that many of these houses were built using variety of materials, and were generally precarious.

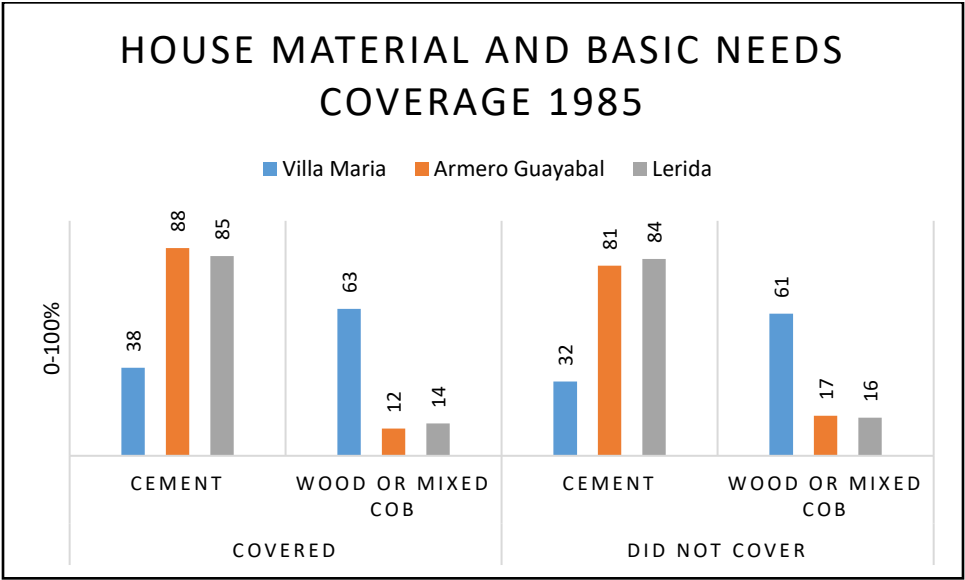


Figure 34. House material and basic needs per municipality before 1985

To be able to get an idea of people’s perception of the houses they received as part of the state’s programmes for the affected population, we also included a question about the quality of the house received in the resettlements (question B.5). Again, for most of the population in Villa Maria, in both groups covered and did not cover, the majority considered that the house they got was better than the house they had in 1985 (figure 35). The percentages for L rida and Armero Guayabal are mixed. For those who covered their basic needs before 1985 about half reported the house they received was better and the other half that it was worse. Additionally, for the group that did not cover the percentage of households that reported the house they got was better than the one they lived in before 1985 is 49 for Armero Guayabal

and 43 for Lérida. An important segment of this group in both municipalities considered the house they got was worse than the one before, 35% and 32% respectively.

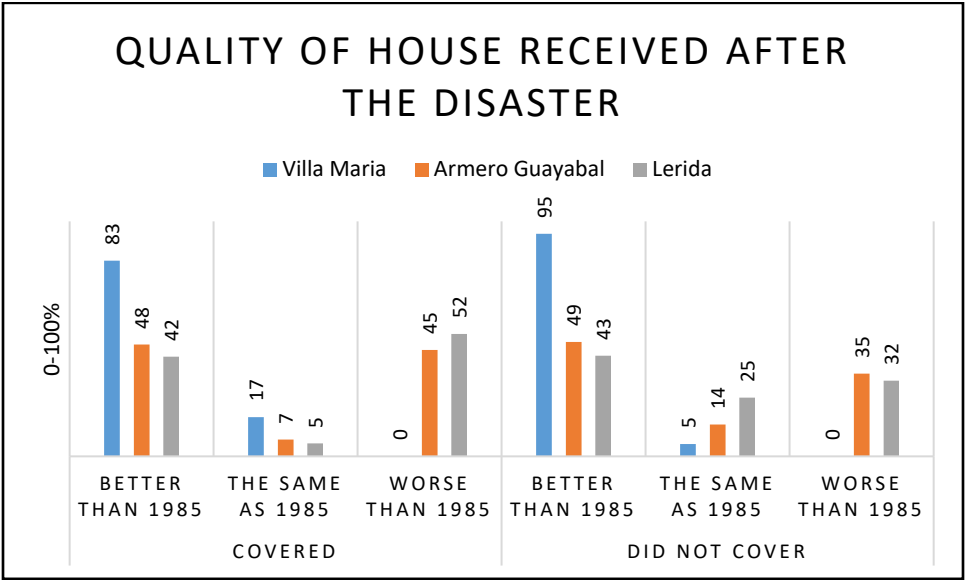


Figure 35. Received house quality and basic needs per municipality

Finally, we asked resettled households to compare the quality of their house before 1985 to the one where they lived in 2015 (figure 36 corresponds to question B.15). Similarly to the results for the question on the quality of the house received above, the majority of households in Villa Maria considered their house was better in 2015 than the one they lived in before 1985. Again the percentages were mixed for Armero Guayabal and Lérida.

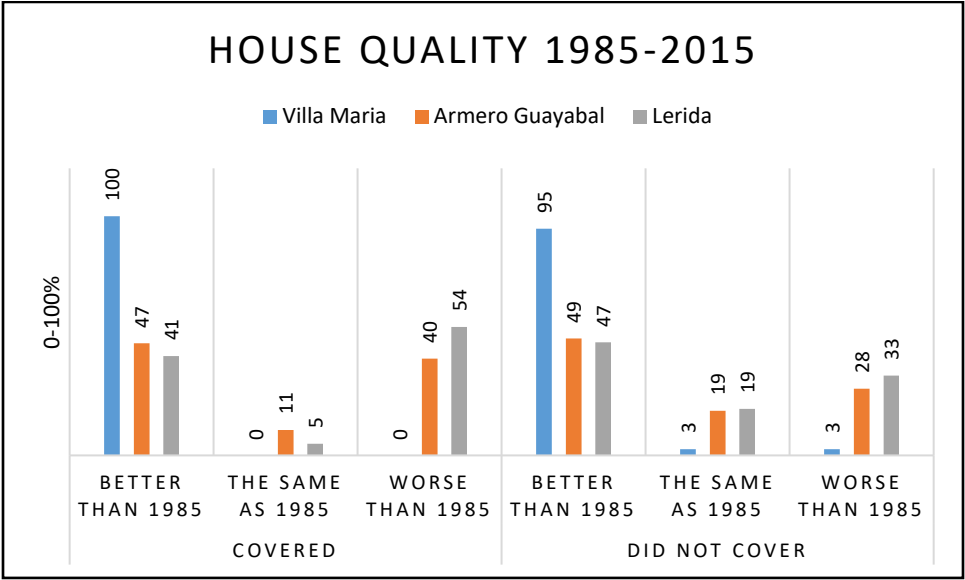


Figure 36. House quality 1985-2015 and basic needs per municipality

The numbers presented above give an indication of the perception in quality of housing for the different groups but alone does not explain why some people feel their quality of life has improved while other feel

the quality of life has worsened over the years. With the data available, it is not possible to explain precisely why these differences across municipalities and households exist, but in general terms, for those households who consider that they were better off before the disaster, the losses were very high. In other words, for them, what was lost cannot be replaced. Depending on the household, this could have been, family members, jobs, or as many have noted, their city and their entire way of living. For some, even if they have been able to find jobs after the disaster, losing family members and not living in Armero anymore has been a major obstacle to a complete recovery. In contrast to that, and for many households in Caldas, particularly those who lived in precarious accommodation before 1985, aspects of their life have improved when both periods are compared. As explained earlier, and especially for families that lost possessions but not family members, having access to a new house, training, perhaps land and livelihood opportunities has improved some aspects of people's lives. This is the case for people like the female and male residents who we interviewed in Nuevo Rio Claro and Nueva Primavera.

As a result of all the training that I received, of so much effort to teach us about leadership, we have been able to recover. I can tell you that thanks to all of that training I am a different person now. Female resident Nuevo Rio Claro (42)

I would not have anything, nothing I would have [...] it is thanks to the avalanche [lahar], and with sadness for those who left us, but it is thanks to the avalanche that I have been successful, my life changed a hundred percent.

Male resident Nueva Primavera (40), 7 May 2015

Obtaining houses was also an important step for many household's recovery trajectories and sense of well-being in the long term. In some cases, as discussed in the section on housing above, entire families moved to houses with much better standards than before.

Despite the fact that we don't receive help anymore, our way of living has changed for us. In Armero we did not have anything, and what we have now is thanks to the assistance we got from the government and the 'Pastoral Social' [religious organisation]. The house that we have has helped a lot, the situation is better although sometimes it is difficult because of the job situation.

Male resident Ibagué (11), 17 July 2015

5.4 Conclusion

In the years following the 1985 eruption of Nevado del Ruiz, many of the survivors of the disaster resettled in areas within the vicinity of the volcano, but in purpose-built settlements on higher ground beyond the reach of lahars. The story of their lives since the disaster, as they began to rebuild livelihoods and social relations, is naturally one of great variation: there is a mixed and uneven story of impact and recovery. Different individuals, of course, have followed different trajectories – just as would be apparent when comparing the lives of any group of people over 30 years. But there also shared trends that can be

distinguished, both geographically in terms of where people originally resided, and socially on the basis of material wealth.

In comparing resettled populations in Tolima and Caldas, a key difference to emphasise is their starting situation. Armero was a prosperous urban centre in 1985, with diverse occupations and mixed wealth levels, while the communities along the Rio Claro depended largely on seasonal agricultural employment and were characterised by high levels of poverty.

Economic livelihoods

The resettled populations from Armero (Tolima) that we surveyed indicated a roughly equal split between those who maintained the same main household occupation (41%) and those that developed a new means of income generation (37%) in the aftermath of the disaster. Many public sector and private sector service occupations were retained, but those working in agriculture found it difficult to maintain their occupations in a struggling sector, hit by a mix of general economic trends and disaster-specific problems (e.g. loss of farming land to lahars and to resettlement sites). Though agricultural cooperatives were set up with allocation of land for farmers, these gradually ceased to function as land was sold off by members. The ability to change livelihood activity was very important for the trajectories of many households, but it was not feasible for all. There have been repeated unemployment issues for many, in a situation of limited job opportunities, making it difficult to secure new reliable sources of income. Remittances, however, have become a significant source of income in the communities. Over the course of time since the disaster there has been some overall recovery in material wellbeing, but the proportion of households not fully able to meet basic needs is still higher than it was before 1985 (65% in 2015 compared with 47% for Guayabal pre-1985, and 52% compared with 29% for Lérída). By comparison the patterns of basic needs coverage reported for the original populations in the resettlement towns has changed much less over this period (54% compared with 49%). Moreover, the majority of the resettled population who were not able to cover basic needs before 1985 still cannot do so in 2015 (72% of this group for Guayabal, and 62% for Lérída).

Major occupational changes also occurred for the resettled populations in Caldas. In the last 30 years daily commuting to the city of Manizales for urban service employment has become a significant source of income, while employment in agriculture, though still the largest sector, has dropped to half the level it had before 1985 (in terms of household's main source of income). For both these trends, it is difficult to distinguish effects of the disaster from wider economic drivers – in the case of agricultural decline, a clearly

important factor has been decreases in commercial prices of coffee during this period. Many of the resettled who were previously landless were brought into cooperatives after 1985, receiving training and land to work, but in time the cooperatives lost membership. As above, remittances and pensions are a prime income source for some households now (which may reflect the age of household members). Compared with the Tolima case, the resettled survey respondents in Caldas indicate that there has been a slight decrease in the proportion of households not fully able to meet basic needs (falling from 83% pre-1985 to 74% in 2015), though the figure remains very high. The great majority (82%) of those who were not able to cover basic needs pre-1985 still report that they cannot do so.

Looking at the population as a whole, one can see an important story emerging from the basic needs trajectories. This is the essence of the mixed story of impact and recovery, at least in a material sense: half of those who were better off originally lost their assets and have not been able to recover fully, though the other half of this group have been able to maintain/recover their material status; over a quarter of the originally worse off group have more than recovered and done better than before materially, though around three-quarters of this group have stayed unable to fully cover their needs (they may have recovered to where they were, but they still struggle to meet basic needs).

Quality of life

It is crucial to recognise that economic livelihood is only one aspect of wellbeing, and that therefore it is only one aspect of recovery. Broader dimensions of quality of life centred not only on job opportunities etc but also on housing and sense of community.

In Tolima, interviewees indicated that the resettlement process itself was a challenging process and that not all who lost homes may have been able to access resettlement properties. Among those we surveyed, there was division in opinion over the relative quality of housing, between those who indicated that the house they occupy is better quality than the one they had in 1985 (47% in Guayabal and 44% in Lérída) and those who indicated it is lower quality (34% in Guayabal and 47% in Lérída). Many who resettled were said to have since sold their property and moved elsewhere (often because of the employment/income problems). Many interviewees indicated that life in the resettlement sites has not been able to replicate the level of access to services, social cohesion and prosperity that they perceived was available in old Armero. Overall, approximately twice as many people felt that the quality of life was best before the disaster than thought it was best in the present day. However, the figure for pre-1985 was

significantly higher for those who covered their basic needs at that time (60% of this group for Guayabal and 49% for Lérída). For those who did not originally cover their basic needs, the figures are actually quite similar for pre-1985 (36% and 35%) and 2015 (30% and 38%) - perhaps suggesting a high value placed on improvements in material wellbeing for this group.

In Caldas, for the great majority the resettlement home was seen as a much-improved construction type than their previous dwelling. Nearly all (96%) who remain perceive they have a better quality house than they did pre-1985 (though again it is important to note that many who were resettled have since sold their property and moved elsewhere). This is despite serious potable water access problems existing in Nueva Primavera. For many of the originally poor resettlers in Caldas, it seems that access to resources, training, and aid has helped them raise their standard of living. Overall, quality of life was seen by the majority (54%) as best in 2015 and only 15% considered it was best pre-disaster.

The meaning of 'recovery'

Analysis of the data collected in the interviews and the survey emphasises the complexity of a recovery process that has depended on what people originally had, what has been lost, and what has been gained in the process, and the ways in which people have made sense of these changes over the years. The quote below best portrays this, most of the time, uneven, process of recovery.

In terms of my house, it is the same, we have what we need here. After the disaster I did not want to buy anything, I thought it was going to happen again, so why bother. Then I got better and realised that life has to go on, to continue. I accepted it, I accepted that we had to start buying furniture for the house, buying beds [...] You must move on, and because of what has happened to us, you just can't stay locked in one place. We did lose a lot, but thanks to God we only lost material possessions and not our lives. That tragedy makes your life change completely, change your way of living, you always think that it is like going backwards, that it is an obstacle that you need to overcome. Thanks to God we have been able to overcome that. Our lives have changed [as a result of the disaster], yes, our lives have changed.
Female resident Guayabal (4), 12 May 2015.

Access to assistance, social networks, as well secure livelihoods and housing are all important, as is the nature of losses and individual psychosocial response – making it difficult to generalise across all aspects of life, as well as across communities. However, a broad division is discernible from the survey and interview data indicating that people from different wealth levels describe the 'recovery' process differently. Those who were originally in a stronger position financially tend to focus on the high losses sustained personally and communally, and this sense of loss continues to dominate their perceptions even

for those who have achieved a material recovery. On the other hand, those who originally were poorer, perceive that the assistance received following the disaster has strengthened their quality of life: they focus on a positive change during the recovery process, despite the sense of loss sustained in the disaster.

A key caveat to this point, however, is the recognition that such interpretations of improvement of wellbeing must be seen as relative. Many who started as relatively poor before the disaster are still lower-income, materially poor in terms of assets and (though we could not do justice to this theme in the research) may report lower wellbeing expectations than other groups. In other words, their recovery trajectory, if upward as it is in many cases, often remains modest. What is perhaps also notable, therefore, is the lack of major social change over time since the disaster. This social inertia has persisted despite the huge disruption and dislocation instanced in the aftermath of a catastrophic event. It also brings into question what we mean by 'recovery' – is it a restoration back to the same state as previously or should it imply an improvement? What kind of recovery do we have if people still struggle to meet their basic needs?

6. Dynamics of risk in high-risk areas around Nevado del Ruiz

This section presents an analysis of the dynamics of risk from volcanic hazards in areas surrounding the volcano today. First, it explores livelihood trajectories of the people that inhabit these areas and at the reasons why people have established themselves here. The second part looks at disaster risk management and focuses on people's knowledge about the volcano, risk communication, access to information and willingness to evacuate. This analysis is based on communities living in areas of high risk from lahars in the Tolima and Caldas Departments, in the Municipalities of Armero Guayabal and Villa Maria respectively.

6.1 Livelihoods in high risk areas

Data from the interviews and survey show that people live in these areas as a result of a combination of reasons which relate to access to jobs and secure places to live. Figure 37 below shows the principal responses as to why different households said they established themselves in these places (corresponds to question B2 in the high risk areas questionnaire). Work opportunities and having a place to live (which includes place was free/necessity, nice place/safe place and displaced) were the most common responses.

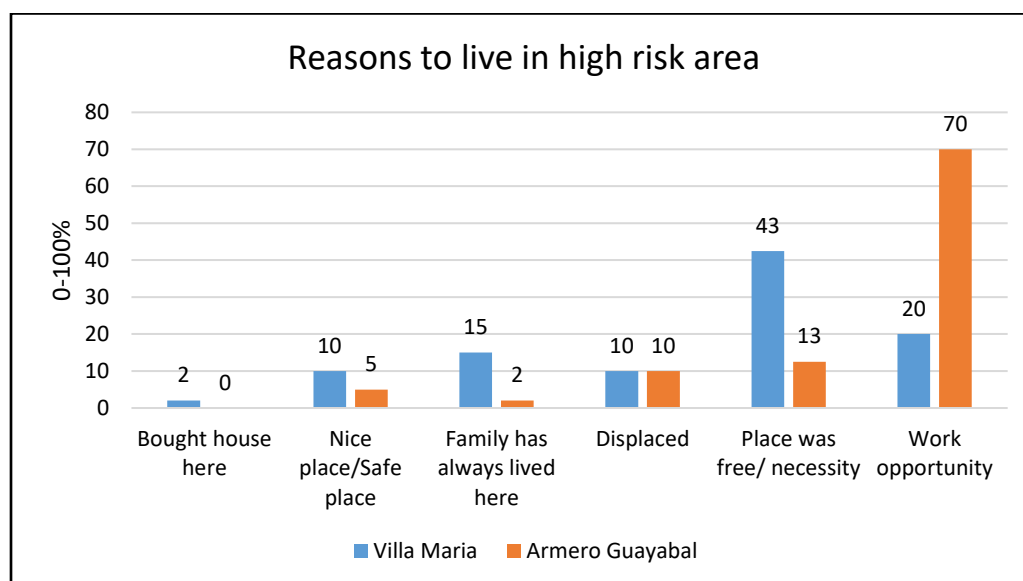


Figure 37. Reasons to live in high risk areas (respondents Villa Maria n= 40, Armero Guayabal n=40)

Figure 38 shows that the sources of income in both Tolima and Caldas Departments for those living in high risk areas are varied (question A.6 and D.1). Unlike the resettlement sites, where most people rely on jobs in the private sector (either as independent workers or employed by industries or small businesses), in the high risk areas, agriculture remains the main source of income.

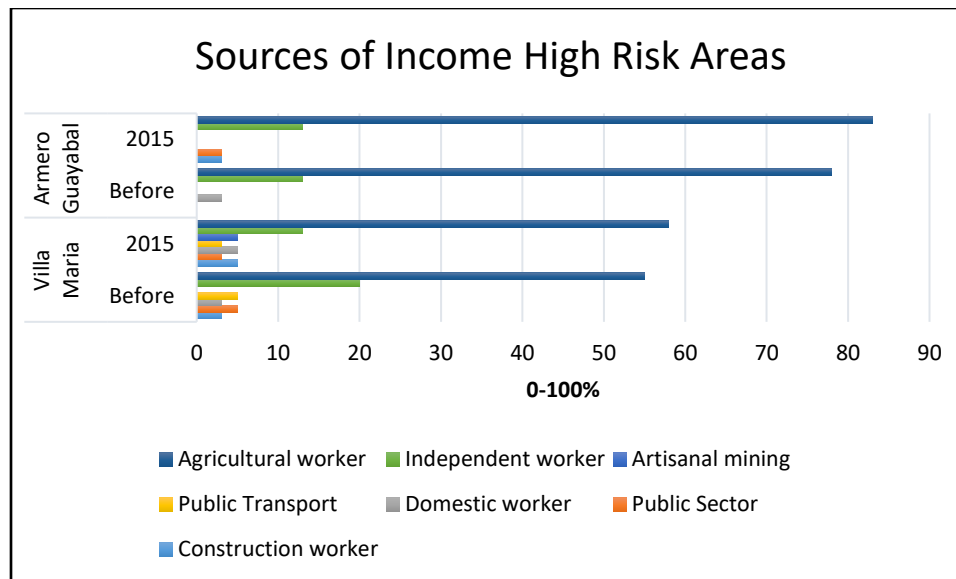


Figure 38. Sources of income in high risk areas – Villa Maria and Armero Guayabal (respondents Villa Maria n= 40, Armero Guayabal n=40)

If compared to sources of income before households moved into these areas (or before 1985 for the small percentage that have always lived there -15% Villa Maria, 2% Armero Guayabal), it is possible to see that agriculture has slightly increased in importance in both Municipalities while other occupations have either remained the same or only changed slightly. This makes sense given that areas of high risk to lahars where this study was conducted are all rural areas where agriculture is the main source of income.

The climate in these places allows households to have a variety of crops and animals and therefore a secure supply of food. Furthermore, and in contrast to living in urban settlements where provisions need to be bought, in rural areas, households can subsist based on their own production or sell some of their produce to buy food.

Living here is good because when you are going through difficult times, you can either eat the produce from the farm like plantain, fish, bananas, cassava or take it and sell it to buy food with that money. So, for example, if you don't have money to buy a pound of sugar, or a pound of rice, what do you do? You go and cut some plantain, get some fish and sell it and buy food with that. Female resident Caldas (49), 19 June 2015

Having a secure source of income combined with living in a safe place (in terms of violence and crime) and having access to land were all important factors highlighted by most interviewees. This was the particular case for households who have been forcibly displaced by violence and the armed conflict in Colombia who have arrived to these areas looking for a safe place to live and to work.

It has been 14 years since we moved here escaping from the violence in Santa Marta. They wanted me to fight and I did not want that so we left and came here. I knew some people that lived here who told me that there was some cheap land. We went to see the farm, it was not in a very good state but it was cheap. There were no coffee or plantain plants, it was all weeds but they were selling it cheap. Living here gives me a lot of

satisfaction [...]. I have land here, even more than where we used to live before. We are very happy, I have a cow and we have sugar cane.

Male resident in Caldas (48), 19 June 2015

We came to live here because we had some friends. We left our homes because we were threatened by the guerrillas. We had everything there, a house, we had a business, a small billiard table for hire. We had to leave everything behind and were only able to leave with what we were wearing, everything stayed there. I lost everything when I moved here. I came 13 years ago.

Female resident in Tolima (29), 21 November 2015

Economic insecurity or common crime are also reasons why people have moved into these areas. Many of those who move to these settlements do not have other options or choices and given their precarious economic situation are only able to afford land, which is located in high risk areas and therefore tends to be inexpensive.

Where we lived before, we had a house but it was in a very bad neighbourhood. There is a lot of drug trafficking and our house was in between two houses. The people that live in one of the houses steals cars and the others used to rob people. So it was not a good environment to have small children like ours. My husband was threatened and so we decided to come and live here instead. We bought this land from someone that had lost everything after the disaster. Since we did not have much money to build the house we lived in a shack while my husband and I built this house. A lot of people would tell us not to build here because it is a dangerous place. We said that that might be the case but we have no other option, or money to buy land in a safer place. So the situation obliged us to buy this plot of land and to come here.

Female resident Viejo Rio Claro, Caldas (47), 18 June 2015

It is true that I live in a high risk zone, but because I am poor I have no other option but to stay here.

Male resident La Primavera. Caldas (41), 7 May 2015

People live close to the river because it is the only possibility people have, people live there out of necessity, because it is a quick alternative, so they find refuge in these places. If they had another option, they would not be there because these are areas of high risk.

Male resident from Nueva Primavera, Caldas (45) 18 June 2015

Land availability and having a place to live are very important aspects of people's decision to move to areas of high risk. In addition, and as reflected by the survey results, many noted that the houses where they live belong to other people who allow them to live there for free or in exchange for work. Figure 39 shows house ownership before and after people moved to these areas (corresponds to questions B.4 and B.6). While in Villa Maria the majority of the interviewed households or 65% own the house where they live, in Armero Guayabal, the percentage of households that inhabit a borrowed place is as high as those who live in their own house, 50% and 45% respectively. The fact that borrowing houses increases from before and after people move into areas of high risk in Armero Guayabal also reflects the vulnerable situation of many

of these households which, as a result of violence and economic insecurity, are forced to move into places where they are able to borrow or in some cases buy property at reduced prices.

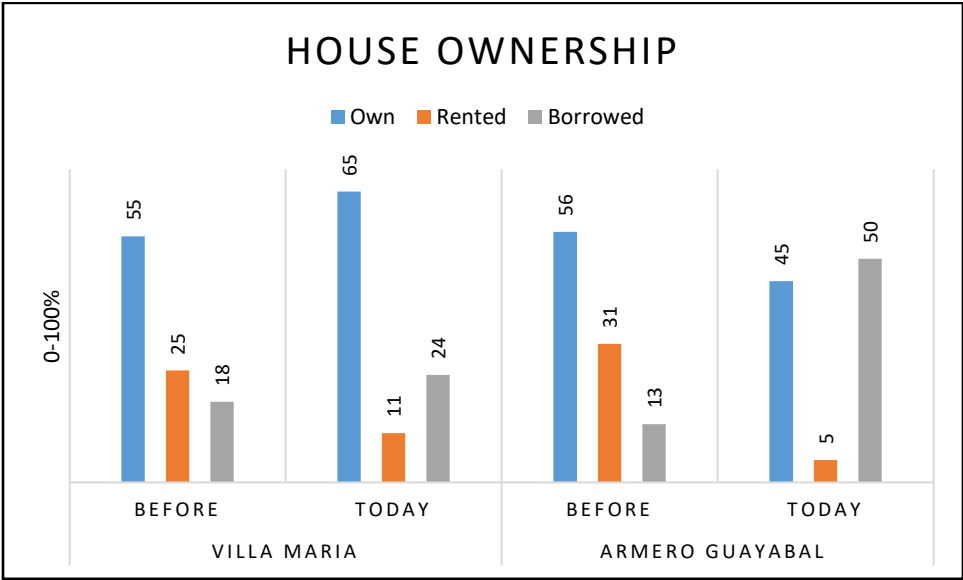


Figure 39. House ownership in high risk areas (respondents Villa Maria n= 40, Armero Guayabal n=40 respondents)

Despite the fact that people are able to find places to live and work, many households remain insecure and poor. Many don't actually own the land where they live and depend on other people who let them stay there and or give them jobs. Their choices remain very limited.

We are displaced from the violence in Tolima. We came here because we knew someone and found this job where I get paid 120.000 a week. But that is not enough to buy all the things we need. It is tough to live here, this house is not ours, and we depend on the owner and the boss, it is a very difficult situation. Female resident La Primavera, Caldas (48), 19 June 2015

Access to basic services such as electricity, potable water and education are relatively good and might be another factor influencing people's decision to move into these areas. Figure 40 shows that while access to potable water is not very good, particularly in Villa Maria where water quality and service is not reliable, access to education and electricity are acceptable (correspond to question E.1).

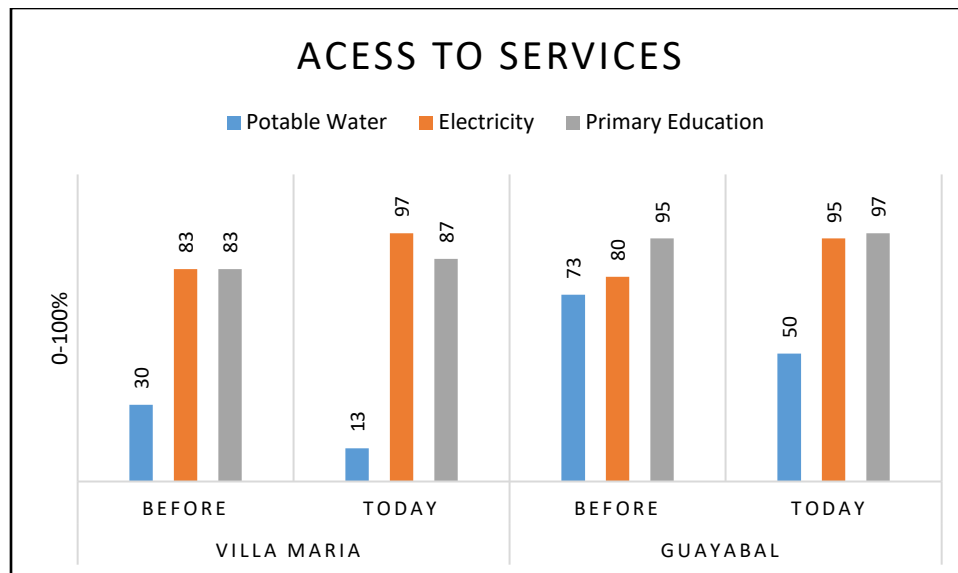


Figure 40. Access to services in high risk areas (respondents Villa Maria n= 40, Armero Guayabal n=40)

Overall, to understand why people live in high risk areas, both the reasons that have attracted them to move in and the places from where people came from must be carefully considered. While the high risk to volcanic hazards makes the land cheaper it also means that vulnerable groups of people, either as a result of their economic condition or the impact of violence, are attracted to these areas. They constitute livelihood opportunities in safe places.

6.1.1 Basic Needs

Survey results show that basic needs coverage has worsened for some households in comparison to where they lived before moving into high risk areas, especially in Caldas. Figure 41 shows that while the percentage of households that partially covered their basic needs by 2015 had increased compared to before people moved into these areas from 44% to 63%, the percentage of households that cover more than basic needs had decreased from 28% to 15% (corresponds to questions D.2, D.4).

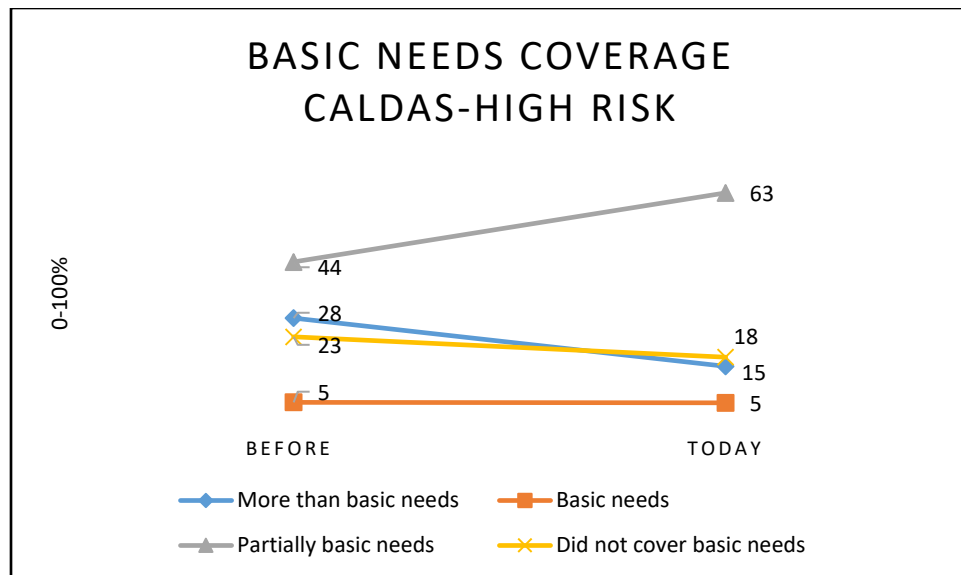


Figure 41. Basic needs coverage in high risk areas – Caldas (n=40 respondents)

In contrast to Caldas, coverage of basic needs for households living in high-risk areas in the Armero Guayabal Municipality has improved from before they moved into these places. In particular, there was a sharp increase in households that covered the basic needs from 3% before to 50% in 2015 and an important decrease in households that partially covered their basic needs from 33% before to 0% in 2015.

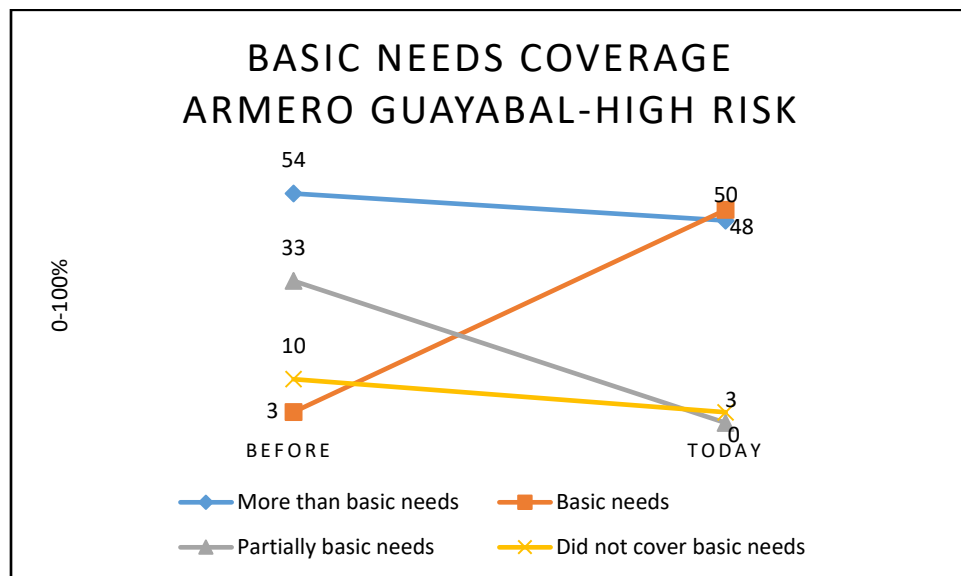


Figure 42. Basic needs coverage in high risk areas- Armero Guayabal (n=40 respondents)

Despite improvement in coverage of basic needs for some households in Armero Guayabal and what could be seen as worsening of the situation for those in Villa Maria, when asked about the overall quality of life, there were mixed results in both Municipalities (question H.1). For Villa Maria, 46% of the interviewed households said that they were most satisfied in 2015, compared to 28% who said they were most satisfied

before moving to areas of high volcanic risk. For Armero Guayabal, a higher percentage or 42% were most satisfied before while 32% are more satisfied in 2015.

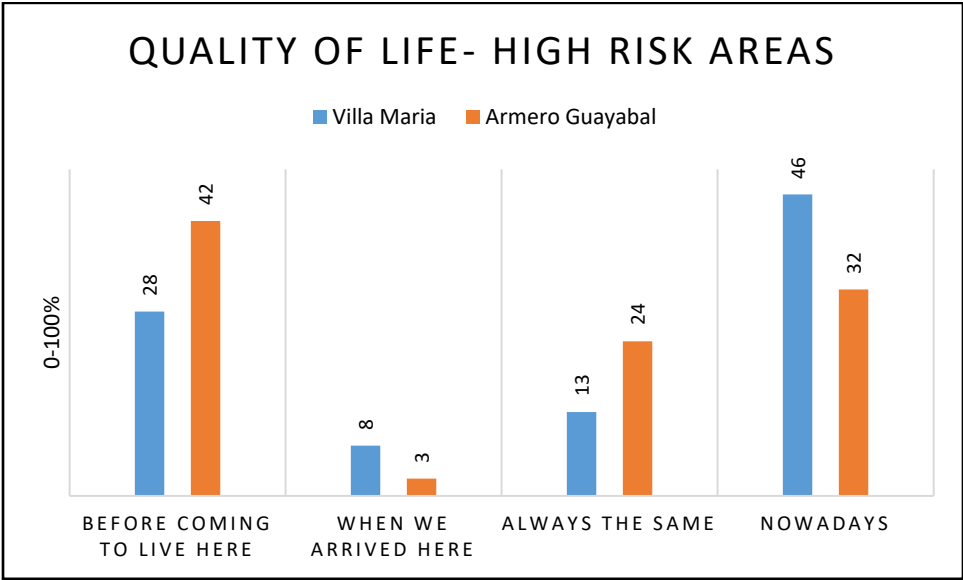


Figure 43. Quality of life- high risk areas

If the figures in terms of satisfaction in quality of life are compared to basic needs coverage, it seems there could be some contractions. While the majority of households in Villa Maria either partially covered (63%) or did not cover their basic needs (18%) in 2015, a relatively high percentage of households were most satisfied with their quality of life in 2015 (46%).

The perhaps contradictory results in terms of quality of life and basic needs coverage for both municipalities, reflects a combination of the reasons that forced people to leave the places where they lived before and the reasons why people moved into areas of high volcanic risk. People left the places where they lived because they were forced to either by violence or poverty.

Box 3. Household Trajectories High Risk Areas

Household (415) from Armero Guayabal, interviewed 8 July 2015

This household lives in the high risk area in the Municipality of Armero Guayabal, they moved there more than 15 years ago because there was an opportunity to work. Before moving there, they had been affected by violence and conflict. They used to own the house where they lived but they consider that the one where they live now, which they also own, is better. Their main source of income in the place where they used to live before was agriculture in their own land, which was sufficient to cover their basic needs. By 2015 this household had two different sources of income which were agriculture in own or rented land and as self-employed which were sufficient to cover their basic needs. Still, this household considered that their quality of life was better before they moved into this area. They have seen the hazard map for Nevado del Ruiz and know that they live in a high risk area and that it could be affected in case there was an eruption. They have a household emergency plan and know what to do in case of an eruption. This household has 3 members all within the economically active age.

Household (452) from Villa Maria, interviewed 27 June 2015

This household lives in the high risk area in the Villa Maria Municipality, they moved there about 10 years ago because the place was free and they had the need. Before that, they had been affected by violence and conflict. They used to own the house where they lived and the one where they live now but consider the house where they live now is better than the one before. Their main source of income before was agriculture in their own land, which was enough to cover their basic needs. By 2015 they had generated an additional source of income but combined the two, agriculture and commerce, were not enough to cover their basic needs. Despite this, they considered that the quality of life was better in 2015 than before they moved to this place. They have seen the hazard map for Nevado del Ruiz and know they live in a medium risk area. They think that in case of a new eruption, the area where they live will be affected. They do know what to do in case of an eruption, but don't have a household emergency plan. This household has 3 members, 2 economically active.

6.2 Knowledge about hazards, preparedness plans and risk Communication

Results from the survey and interviews show that the majority of people who live in high risk areas are aware that the places where they live and work are considered to be of volcanic risk. Most have mentioned that they have been informed about this either by the authorities or neighbours or that they had witnessed the impact of the lahars in 1985. The contradiction of having a secure livelihoods while living a high risk place were highlighted by most interviewees. High risk areas such as the ones where this study was conducted offer access to land and employment and therefore become an attraction for otherwise insecure households.

We know that this is an area of high risk, we knew these area before the ‘avalanche’ [lahar] and that there were many houses and all were swept away. We know we are in the ‘red zone’ but the economic situation we have does not allow us to move anywhere else.

Male resident Caldas (46), 18 June 2015

We came here forcibly displaced in 1996. We were moved here and that is why we live in a zone of high risk. Everyone knows that this is an area of high risk, but where are they going to move us, if we are displaced already. Yes, the Red Cross comes here and tells us about the risks, and what we should do in case there is an avalanche, that we should move to higher ground as soon as possible.

Female resident Tolima (30), 21 November 2015

We are very used to living here because my children are free, there are no drug problems here which is what worries me. They can play and I can look after them and have animals which is what we live off. It is because of the pigs we have that we have been able to get by. In the city where we used to live it was very different, it is very hard to live there, you have to buy everything. You want to buy a banana and it costs money, here you can ask the neighbour and they give it to you. Here we don’t pay for water either as we get it from a water spring. Female resident Viejo Rio Claro, Caldas (47), 18 June 2015

However, the extent of the knowledge about the hazard, and preparedness plans required to minimise the risk involved in living in these areas is still limited. This became evident through the survey results. For example, figure 44 shows that although 70% of households in Villa Maria and Armero Guayabal believe that an eruption could affect their households, 20% of households in both municipalities think the opposite or simply don’t know if an eruption would affect them in the future (question J.5).

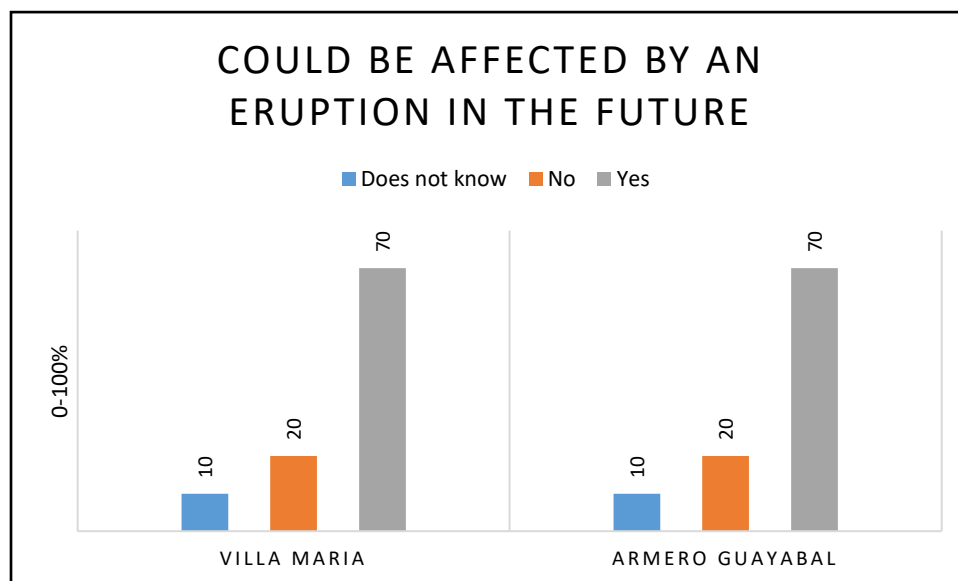


Figure 44. Could be affected by an eruption – high risk areas

Moreover, as figure 45 shows, less than half of households interviewed think they live in areas of high risk, 43% and 45% for Villa Maria and A. Guayabal respectively (question J.4). The remaining households

either think they are in areas of medium, low risk or simply don't know where they are located in relation to the volcano.

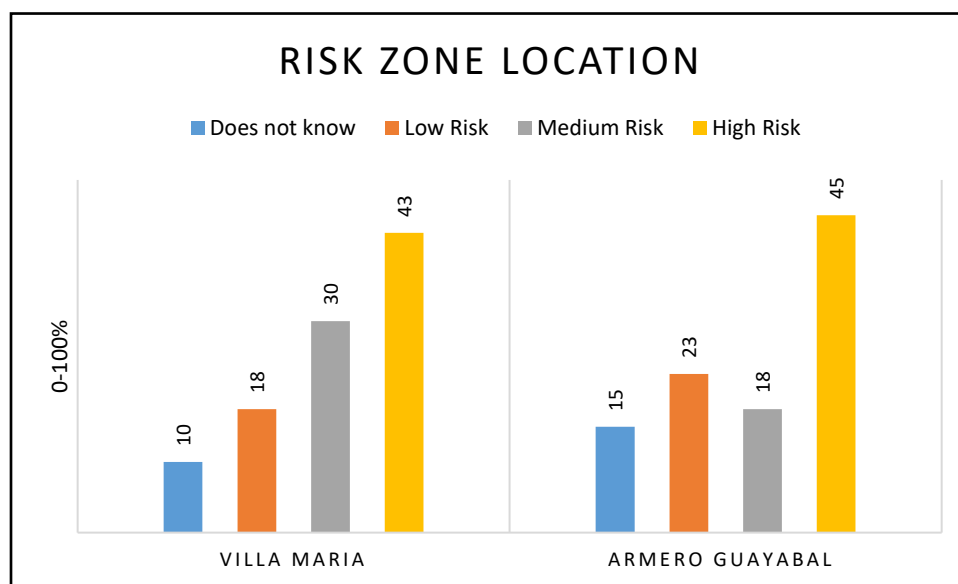


Figure 45. Location of households in relation to area of high risk – high risk areas

During the interviews and workshops, it became clear that confusion in relation to where each household is located in terms of risk to lahars, comes from limited available information and contradicting sources of information.

For example, as the female resident in a risk area in Caldas explains below, some neighbours have told them that the lahars in 1985 did not pass by the place where their house is located and only affected the other side of the river.

People have told us that when the 'avalanche' happened, it did not come to this side of the river. It went to the other side and that is why the person that owned this plot of land died, because their house was on the other side of the river.

Female resident Viejo Rio Claro, Caldas (47), 18 June 2015

Yet, the precise route of each lahar is not possible to estimate or predict and as a result, all houses in the proximity of the river are considered to be at high risk. Some of this confusion also results from the fact that most people in both municipalities have not seen the risk map (figure 46 corresponds to question J.3). Even if they have seen the map, it is not clear if they have been able to locate their houses in relation to the hazards depicted in it. The map itself covers a very large and it is very difficult for each household to find in detail where their household is located on the map.

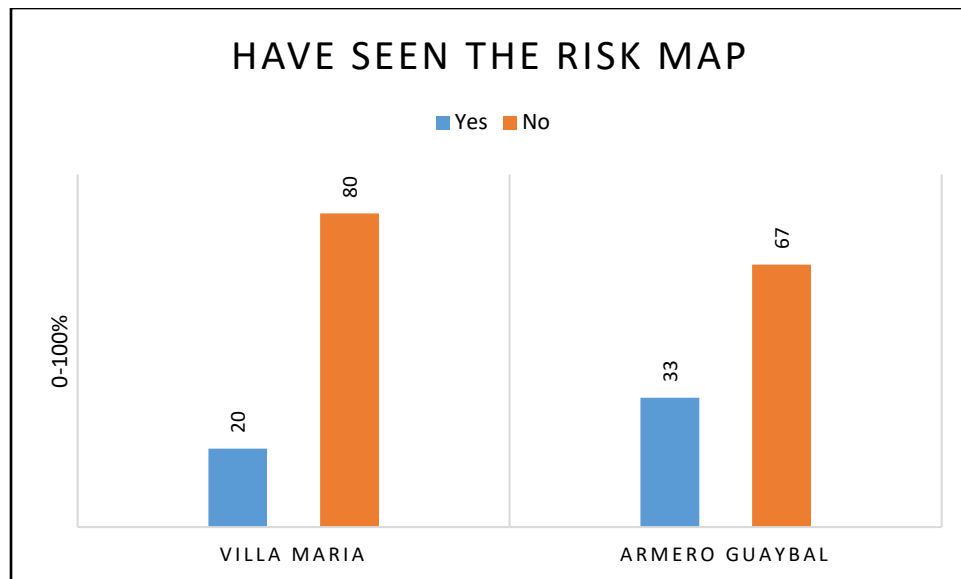


Figure 46. Have seen the risk map – high risk areas

Despite the fact that the precise location or risk area where each household is located is not entirely clear, when people were asked if they know what to do in case a lahar descended in the river, the majority said they know (figure 47 corresponds to question J.6).

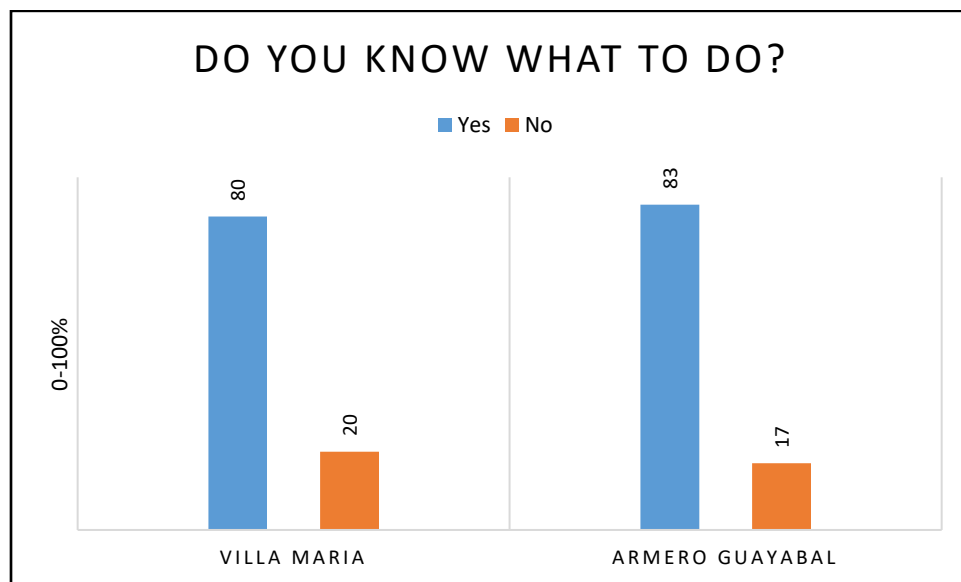


Figure 47. Know what to do in case of an eruption – high risk areas

During the interviews, some people explained that they know they should run to higher ground and not upstream or downstream. Yet when asked whether their household has an emergency plan, almost half in Villa Maria and 60% in A. Guayabal said they did not have a plan (figure 48 question J.7).

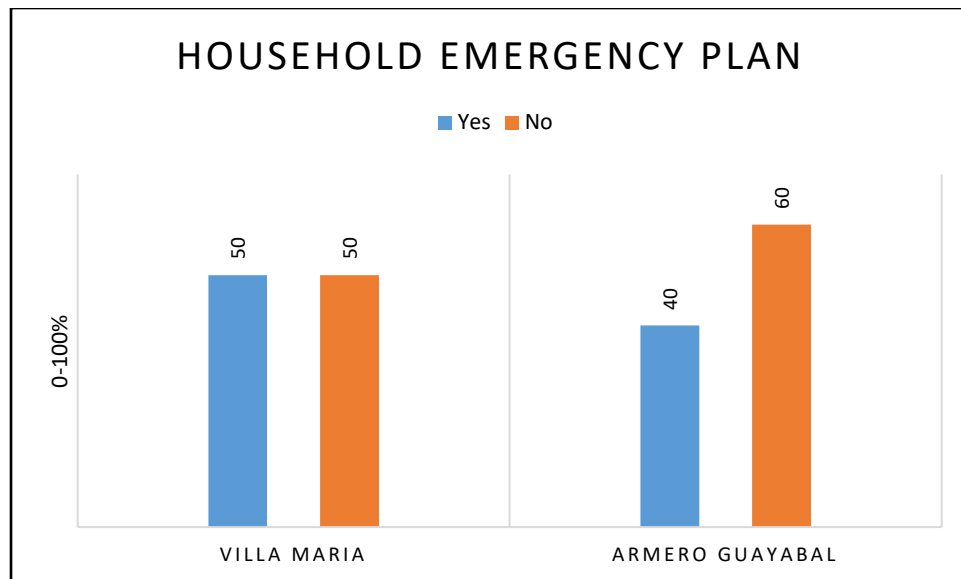


Figure 48. Household emergency plan – high risk areas

In the interviews people noted that they are willing to evacuate but some don't know where to go and what each family member should do in case of an eruption.

We have children, my brother is disabled, and in case of an emergency we would not know what to do. In addition, my mother is old. So until the moment arrives, we really don't know what we are going to do, we don't know where to go. What if it happens in the middle of the night, let's hope it does not happen.

Female resident, Los Cambulos, Tolima (30), 21 November 2015

Other issues noted during the interviews, were problems with the early warning systems, and evacuation routes. In terms of the sirens, some people mentioned that they are far away from their homes, or that they have been misused in the past which has resulted in mistrust and limited reaction when the sirens are activated. This can have serious consequences because in Caldas, the river valley is very narrow and going to higher ground is not always possible before either going upstream or downstream. Similarly, in Armero Guayabal, reaching higher ground might not be possible if the warning is not given well in advance because safe areas are far away from many homes.

They have told us that we need to run to higher ground, but how are we going to do that from where we live. The valley is very narrow here, there is only one bridge that crosses to the other side and so we need to follow the road next to the river downstream, before we are able to find a place to go up. Male resident Caldas (46), 18 June 2015

They say that down, next to the dam there is an alarm, but I have never heard it. I think we are too far from it so we are not able to hear it. They should install one closer to us and also visit us more often and explain what the situation is and what we are supposed to do. Male resident Viejo Rio Claro, Caldas (47), 18 June 2015

The highest hill is too far away from us. If you look at it, you can see that in case there is an avalanche we will be surrounded by it from all sides. Unless they let us know well in advance, I don't think we would have time to reach higher ground.

Female resident, Los Cambulos, Tolima (30), 21 November 2015

6.3 Conclusion

Despite the devastating consequences of the lahar disasters of 1985, people occupy sites today within valleys and low-lying sites around Nevado del Ruiz that are designated as high-risk. In our study sites a small proportion of sampled households originally lived in these places (2% in Armero Guayabal and 15% in Villa Maria), but the great majority have moved in since 1985 to occupy this vacant land for economic reasons or because of forced displacement.

Migration and opportunity

The key reason why people have moved into (or continue to reside in) these areas is the opportunity to live in a place where they are safer from violence and able to pursue a livelihood – either through access to urban employment opportunities or through access to land for farming. Given that many who migrated were poor or lost possessions when displaced, these locations are attractive precisely because the existence of high-risk mean they are places where land prices are low and therefore affordable. In Armero-Guayabal especially, there is also a high availability of houses that can be borrowed (50% of the sampled households there occupy borrowed houses).

Across the study population currently dwelling in high-risk areas, agriculture has been and remains the primary source of income. This is a population that is relatively poor and many remain income insecure because they do not own the land and houses they occupy. This is especially the case in Villa Maria (Caldas), where the majority of survey respondents indicated that they are presently unable to fully meet their basic needs. Moreover, this situation seems to have worsened across the group: the proportion has risen from 67% not meeting basic needs before they moved in to 81% not being able to do so in 2015. Contrastingly, for the sampled population in Armero-Guayabal (Tolima) the equivalent figures show a major improvement, changing from 43% to just 3%.

The survey findings on basic needs noted above are remarkably different from the findings on quality of life. For Villa Maria, 46% of households said that they were most satisfied in 2015, and 28% said they were

most satisfied before moving to areas of high volcanic risk. For Armero Guayabal, 32% were more satisfied in 2015 compared with 42% who were most satisfied before they moved. This seemingly contradictory result, with those in Villa Maria being less likely now to cover their basic needs yet indicating higher wellbeing, and vice-versa for Armero-Guayabal, is difficult to explain. However, a key point to recall is that the reasons for many moving was not necessarily for economic betterment but to escape from violence and build a new home and new life in somewhere where they felt safer.

Risk awareness

The population moving in to the high-risk areas are not unaware that there are potential hazards where they now live. Across both sites, 70% of survey respondents stated that the area they live in could be affected by a volcanic eruption. Indeed, the testimonies that some gave made it very clear that, though they understood that risk exists in their new sites, they had few other options offering them access to land and employment. The risk was therefore a trade-off in order to meet their livelihood needs.

However, beyond this simple awareness of the possibility of hazards, there were evident limitations in the extent of understanding across this population both of the level of threat and how to respond in an emergency. Less than half of the households recognised that they live in an area designated as 'high' risk. For others, this lack of recognition seems to be partly because they do not have access to detailed information and partly because of misinformation received from other residents. Only 20% of respondents in Villa Maria and 33% in Armero-Guayabal had seen the official risk map indicating hazard zonation, which itself is large-scale and therefore difficult to interpret in terms of house location.

The finding that one half of the respondents in Villa Maria have a household emergency plan is perhaps encouraging for DRM managers, but it still means that half of the households did not. For Armero-Guayabal only 40% stated that they had a household plan. Interviews indicated that many households were prepared to evacuate as necessary, but did not always know how to do so or where to go. Some had doubts about the practicality of reaching higher-elevation evacuation areas quickly enough because of difficult terrain and/or long distances to move. Distance from alarm sirens was also raised as an issue, together with distrust in alarms because of previous misuse. All are factors that might seriously reduce the effectiveness of people's response in a volcanic crisis.

7. Summary of Findings

This report presents the findings from in-depth empirical research with the people who live and work around Nevado del Ruiz in the departments of Caldas and Tolima in Colombia. It discusses the livelihood characteristics, choices and problems, and the changes in wider aspects of wellbeing, of two groups whose life trajectories have been profoundly shaped by the consequences and opportunities presented by occupying places at high risk from volcanic hazards.

Chapter 5 reveals a mixed story of impact and recovery – one in which individual capacities and levels of assistance strongly shaped the trajectories of their and their household's lives, but also one that shows how many have struggled to meet their basic needs and/or raise their sense of wellbeing in the 30 years since the disaster. For many, 'recovery' is perhaps not the right word for a disaster that killed so many and destroyed so much, no matter how fortunate or how resourceful they have been in rebuilding livelihoods. For others, especially those who have always struggled economically and who have seen a welcome but marginal rise in quality of life, the question of what constitutes 'recovery' and what it means in relation to previous economic status is a key one. The findings underline how resettlement strategies must take into account all aspects of people's wellbeing and livelihood needs, and that support is likely to be needed to develop those communities for many years after relocation.

Chapter 6 indicates both the push and the pull that has brought new people into the high-risk zones devastated by lahars in 1985 (and from which most of the original surviving residents were resettled). This is a different population group – one that has generally not faced volcanic disaster, but which has many members who faced political violence and/or severe poverty. Despite a common awareness that risk from volcanic hazards is present in those areas, the availability of a place to settle that has low risk from political violence and that seems to offer livelihood opportunities takes priority for these households. Recognition of the strength of these priorities is important to understand for those attempting to improve risk behaviour, but that does not mean that disaster preparedness cannot be strengthened through enhancing understanding of potential exposure to hazards, mechanisms of communication and alarm, and how to plan for evacuation.

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Appendix A. Survey Questionnaires

- 1) High risk areas questionnaire
- 2) Impacted and Original population questionnaire

PROYECTO STREVA - UNIVERSIDAD DE MANIZALES FORTALECIMIENTO DE LA RESILIENCIA EN ZONAS VOLCÁNICAS VISITA DOMICILIARIA

A R

ENUMERACIÓN

1. ENCUESTADOR

CÓDIGO

FECHA

D M A

2. ENTREVISTADO

El entrevistado aceptó ser encuestado

SÍ

No

3. LUGAR

Grupo de población:

1= Afectado 1985

2= Zona de alto riesgo

3= Población original

Número de hogar

Comunidad /Nombre del Barrio

4. RESULTADO DE LA ENCUESTA

1= Completa

2= Incompleta

VERIFICACIÓN

5. SUPERVISIÓN

CÓDIGO

FECHA

D M A

FIRMA:

Notas del Supervisor / Encuestador

CARACTERÍSTICAS DEL HOGAR

A. INFORMACIÓN BÁSICA DEL HOGAR

Por favor complete esta tabla para todos los miembros del hogar

A.1 ¿Cuántos miembros hay en este hogar?	A.2 ¿Cuántas mujeres?	A.3 ¿Cuántos hombres?	A.4 Cuántos niños menores a 18?	A.5 ¿Cuántos miembros en edad económicamente activa? (incluir todos: los que están empleados y los que están desempleados)	A.6 ¿Cuáles son las actividades principales/fuentes de ingresos de los miembros de este hogar? (poner hasta dos empleos/fuentes de ingresos)

TIPO DE OCUPACIÓN	1 = Agricultura en tierra propia o arrendada 2 = Jornalero (trabajo agrícola) 3 = Empresa/comercio (comercio, restaurante, peluquería, almacén, turismo, empresa agrícola) 4 = Empleado independiente (carpintero, plomero, fotógrafo) 5 = Obrero (construcción) 6 = Empleado en el sector privado (fábrica, turismo, etc.) 7 = Empleado en el sector público (municipio, gobierno etc.)	8 = Empleada doméstica 9 = Maestro/docente 10 = Transporte público/privado (taxi/bus/camión) 11 = Arenero 12 = Pensionado 13= Recibe ayuda social 14= Renta de arriendo/alquiler de propiedades 15 = Otra (especifique) 0 = No se acuerda/no sabe
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PATRIMONIO DEL HOGAR

B TIPO DE VIVIENDA							
B.1 ¿Cuánto tiempo ha vivido aquí? 1= Menos de (1) año 2= Entre (1) y (3) años 3= Entre (3) y (5) años 4= Entre (5) y (10) años 5= Entre (10) y (15) años 6= Más (15 años) 7= Siempre (ir a B.5) 0= No sabe	B.2 ¿Por qué vino a vivir acá? 1= Lugar estaba libre (por necesidad) 2= Trabajo/empleo 3= Desplazado 4= La familia siempre ha vivido aquí 5= Otro (especificar) n/a= No se aplica	B.3 ¿Qué tipo de vivienda (s) tenían antes de venir a vivir acá? 1= Casa de cemento /material/ ladrillo 2= Casa de bareque/madera 3= Otro (especificar) 0= No sé acuerda/no sabe n/a= No se aplica	B.4 ¿Esta vivienda era...? 1= Propia 2= Arrendada 3= Prestada 0= No sabe/no se acuerda n/a= no se aplica	B.5 ¿La vivienda donde habitan actualmente es? 1= Casa de cemento/material/ladrillo 2= Casa de bareque/madera 3= Otro (especificar) 0= No se acuerda/no sabe	B.6 ¿Esta vivienda es...? 1= Propia 2= Arrendada 3= Prestada 0= No sabe/no se acuerda	B.7 ¿Ha hecho alguno de los siguientes cambios a su vivienda desde que vive aquí? 1= Mejora de pisos (cerámica/madera) 2= Anadir cuarto 3= Pintura y decoración en general 4= Mejoramiento de techos 5= Agrandar espacios comunales 6= Mejoramientos en jardín 7= Mejoramiento en la cocina 8= Otro (especificar) 9= Ningún cambio 0= No sabe/ no se acuerda	B.8 ¿Considera que esta vivienda es...? 1= Mejor que la que tenía antes o como estaba antes 2= Igual a la que tenía antes o como estaba antes 3= Peor a la que tenía antes o cómo estaba antes 0= No sabe n/a= No se aplica

C. TERRENO PROPIEDADES			
C.1 ¿A parte de su casa/solar, este hogar tenía o arrendaba otras propiedades/terrenos (parcela/finca) antes de venir acá? (antes de la erupción/avalancha) 1= Sí 2= No 0= No sabe/no se acuerda n/a= no aplicable (pasar a C.3) Si la respuesta es Sí ir a C.2 Si es No/no sabe ir a C.3	C.2 ¿Qué actividad realizaba en esa tierra/ propiedad?	C.3 ¿A parte de su casa/solar, este hogar tiene o arrienda otras propiedades/terrenos (parcela/finca) actualmente? 1= Sí 2= No 0= No sabe/no se acuerda Si la respuesta es Sí ir a C.4 si es No/no sabe ir a D.	C.4 ¿Qué actividad este hogar realiza en ese terreno/ propiedad actualmente?

CÓDIGOS C.2/C.4	1= Tierra para cultivo/ganado propio 2= Tierra para cultivo/ganado arrendada 3= Negocio/Almacén en local propio 4= Negocio/Almacén en local arrendado	5= Local/Casas/Apartamento para arrendar 6= Otros (especificar) 0= No sé
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D. TRAYECTORIAS EN LAS FUENTES DE INGRESOS /SUSTENTOS DE VIDA			
D.1 ¿Cuáles eran las principales fuentes de ingresos/empleo de este hogar antes de venir a vivir acá (antes de 1985) ? (Si este hogar ha vivido siempre en este lugar preguntar antes de 1985 rupción/avalancha)	D.2 ¿Estas fuentes de ingreso eran...? 1= suficientes para cubrir las necesidades básicas del hogar 2= cubrían más que las necesidades básicas del hogar 3= cubrían parcialmente las necesidades del hogar 4=no cubrían las necesidades básicas del hogar 0= no sabe	D.3 ¿Actualmente este hogar ...? 1= mantiene las mismas principales fuentes de ingresos que antes (de 1985) vivir aquí (incluye pensiones/) 2= siempre han tenido las mismas fuentes de ingresos 3= ha generado nuevas fuentes de ingresos ocupaciones 4= Perdieron las fuentes de ingresos/ocupaciones y no la ha recuperado 0= no sabe	D.4 ¿Estas fuentes de ingreso son...? 1= suficientes para cubrir las necesidades básicas del hogar 2= cubrían más que las necesidades básicas del hogar 3= cubrían parcialmente las necesidades del hogar 4=no cubrían las necesidades básicas del hogar 0= no sabe

TIPO DE OCUPACIÓN	1 = Agricultura en tierra propia o arrendada 2 = Jornalero (trabajo agrícola) 3 = Empresa/comercio (comercio, restaurante, peluquería, almacén, turismo, empresa agrícola) 4 = Empleado independiente (carpintero, plomero, fotógrafo) 5 = Obrero (construcción) 6 = Empleado en el sector privado (fábrica, turismo, etc.) 7 = Empleado en el sector público (municipio, gobierno etc.)	8 = Empleada doméstica 9 = Maestro/docente 10 = Transporte público/privado (taxi/bus/camión) 11 = Arenero 12 = Pensionado 13= Recibe ayuda social 14= Renta de arriendo/alquiler de propiedades 15 = Otra (especifique) 0 = No se acuerda/no sabe
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E. COBERTURA DE LOS SERVICIOS PÚBLICOS				
	E.1 ¿Qué servicios tenía este hogar antes de vivir aquí?	E.2 ¿Qué servicios tiene este hogar actualmente?	E.3 ¿Qué empresa/institución brinda estos servicios actualmente?	E.4 ¿Cómo ha cambiado la calidad de los servicios desde que vino a vivir acá (1995)?
	1= Sí 2= No 0= No sabe/ No se acuerda	Si= 1 No= 2 0= No sabe		1= Ha subido 2= Ha bajado 3= Igual 0= No sabe
Agua potable				
Electricidad				
Atención medica				
Educación primaria				
Educación secundaria				
Policía				

CÓDIGOS E.3 - ENTIDAD QUE PRESTA EL SERVICIO

1 = Gobierno municipal

2 = Gobierno departamental 3

= Gobierno nacional

4 = ONG

5 = empresa privada

6 = ninguna 7= publico privada 8= otro (especi) 0

= No sabe

F. INVERSIONES PUBLICAS EN EL MUNICIPIO A PARTIR DE 1995			
	F.1 ¿Sabe usted si se han realizado estas obras públicas desde que vino a vivir acá (1995)?	F.2 ¿En caso de si, en que año?	F.3 ¿Qué entidad realizó?
	1= Sí 2= No 0= No sabe/ No se acuerda		
Una carretera			
Un hospital			
Un puente			
Una escuela			

CÓDIGOS F.3 - ENTIDAD QUE PRESTA EL SERVICIO

1 = Gobierno municipal

2 = Gobierno departamental 3

= Gobierno nacional

4 = ONG

5 = Empresa privada

6 = Federación de Cafeteros 7 = Ninguna 8 = otro (especificar) 0

G. INVERSIONES PRIVADAS EN EL MUNICIPIO A PARTIR DE 1995		
	G.1 ¿Qué tipo de negocios/inversiones importantes se han realizado en este municipio desde que vino a vivir acá (1995)? 1= Sí 2= No 0= No sabe/ No se acuerda	G.2 ¿Comparado con la situación cuando vino a vivir acá (antes de 1985), cómo ha cambiado la cantidad de esa inversión privada desde entonces? 1= Ha subido 2= Ha bajado 3= Igual 0= No sabe
Bancos		
Agroindustria		
Otra industria		
Comercio (incluidas tiendas)		
Turismo		
Compra de casas (inmobiliario)		

H. CALIDAD DE VIDA	
H.1 ¿En qué momento ha estado más satisfecho con su calidad de vida (posesiones materiales, acceso a servicios etc.)? (antes de la erupción/avalancha) 1= antes de venir a vivir acá (antes de la erupción/avalancha) 2= Cuando llegué (después de la erupción/avalancha) 3= siempre igual 4= actualmente 0= no sabe	H.2 ¿Cuándo ha estado menos satisfecho con su calidad de vida (posesiones materiales, acceso a servicios etc.)? (antes de la erupción/avalancha) 1= antes de venir a vivir acá (antes de la erupción/avalancha) 2= Cuando llegué (después de la erupción/avalancha) 3= siempre igual 4= actualmente 0= no sabe

I. IMPACTOS DE OTRAS AMENAZAS							
	I.1 ¿Este hogar ha sido afectada por esa amenaza? 1= Sí 2= No 0= No sabe	I.2 ¿En qué año pasó?	I.3 ¿cómo evalúa usted el nivel de afectación? 0= Ningún impacto 1= bajo Impacto 2= medio 3= alto impacto	I.4 ¿Este hogar recibió apoyo después? 1= Sí 2= No 0= No sabe	I.5 ¿En caso que sí, que tipo de apoyo recibió? <i>(Puede poner hasta tres)</i>	I.6 ¿cómo evalúa la calidad del apoyo recibido? 0= Muy mala 1= mala 2= buena 3= Muy buena	I.7 ¿De quién recibió este apoyo?
Inundaciones							
Deslizamientos							
Conflicto Armado							

CÓDIGOS I.5 - TIPOS DE APOYO DESPUÉS DE LAS AMENAZAS

- 1 = Económico (bono)
 2 = Alimentos
 3 = Insumos para las actividades productivas
 4 = Créditos
 5 = Vivienda reparada
 6 = Vivienda nueva (en el mismo lugar)
 7 = Vivienda nueva (reubicada)
 8 = Capacitación sobre cómo protegerse al futuro
 9 = Otros
 0 = No sé

CÓDIGOS I.7 - PROVEEDORES DE APOYO

- 1 = Gobierno municipal
 2 = Gobierno departamental
 3 = Gobierno nacional
 4 = ONG
 5 = empresa privada 6= Organismos de socorro
 7= Otro (especificar) 0= No sabe

J. COMUNICACIÓN DEL RIESGO Y PREPARATIVOS

J.1 ¿Cree que ha habido mejoras en la prevención de desastres desde 1985?	J.2 ¿Qué mejoras cree que se han hecho? <i>Por favor escoja hasta tres (3) respuestas</i>	J.3 ¿Ha visto alguna vez el mapa de amenazas para el Nevado del Ruiz?	J.4 ¿En qué zona de riesgo cree que su hogar está ubicado?	J.5 ¿Cree que este asentamiento/pueblo pueda ser afectado por una erupción/avalancha en el futuro?	J.6 ¿En caso de una erupción/avalancha del Volcán Nevado del Ruiz sabría qué hacer?	J.7 ¿Tiene este hogar un plan de emergencias?	J.8 En caso de aumento de alerta por actividad volcánica, ¿en quienes confiaría más para tomar una decisión?
1 = Sí 2 = No 0 = No sabe	1 = Sí 2 = No 0 = No sabe	1 = Sí 2 = No 0 = No sabe	1= Alto riesgo 2= Medio riesgo 3= Bajo riesgo 0= No sabe	1= Si (ir a siguiente pregunta) 2= No 0= No sabe	1 = Sí 2 = No 3 = Piensa que NO podría pasar 0 = No sabe	1 = Sí 2 = No 0 = No sabe	Escoger hasta dos (2) opciones

CÓDIGOS J.2 - MEJORAS EN LA PREVENCIÓN

- 1 = Mayor comunicación del riesgo
 2 = Mejoras en los preparativos previos
 3 = Inversión en infraestructura protectora (por ejemplo, muros de contención)
 4 = Mejoras en la planificación territorial (para evitar construcción en zonas de riesgo)
 5 = Mejoras en la comunicación de los sistemas de alerta temprana
 6 = Mejoras en la respuesta/ayuda después
 7 = Otra (especificar)

CÓDIGOS J.8 - INSTITUCIONES DE CONFIANZA

- 1= Cruz Roja
 2= Defensa Civil
 3= Bomberos
 4= Policía
 5= Ejército
 6= Redes sociales
 7=Medios de comunicación
 8= Líderes comunitarios
 9= Líderes religiosos
 10= Servicio Geológico Colombiano
 11=UNGRD
 12= Ecopetrol
 13= Otro (cual) 14= Ningun

K. PARTICIPACIÓN DE LA POBLACIÓN EN LOS PROCESOS DE DESARROLLO				
	K.1 ¿Ha escuchado sobre los siguientes eventos o actividades?	K.2 ¿Ha participado usted en alguno?	K.3 ¿En caso de si, con cuanta frecuencia participó?	K.4 ¿En caso de no: ¿cuáles son los motivos qué lo han impedido participar?
	1 = si 2 = no 0 = no sabe	(si ir a K3, no ir a K4)		Pregunta abierta
Reunión junta de acción de comunal				
Reunión municipal sobre prevención de desastres				
Movilización ciudadana				
Reunión sobre plan de gestión de riesgo municipal				
Elaboración del Plan de Desarrollo y Ordenamiento Territorial municipal				
Estudios de riesgo de desastre (Universidad/otra entidad)				

CÓDIGOS K.2 - SABE Y PARTICIPADO

1 = Si
2 = No
0 = No sabe

CÓDIGOS K.3 - FRECUENCIA DE LA PARTICIPACIÓN

1 = Cada semana
2 = Cada mes
3 = Un par de veces al año
4 = Un par de veces en la vida
5 = Solo una vez
6 = Cuando son temas importantes
0 = No sabe

ENUMERACIÓN		D M A			Notas del Supervisor / Encuestador
1. ENCUESTADOR	CÓDIGO	FECHA			
2. ENTREVISTADO					
El entrevistado aceptó ser encuestado	Sí	No			
3. LUGAR					
Grupo de población:					
1= Afectado 1985	Número de hogar				
2= Zona de alto riesgo					
3= Población original					
Comunidad /Nombre del Barrio					
4. RESULTADO DE LA ENCUESTA					
1= Completa					
2= Incompleta					
VERIFICACIÓN					
5. SUPERVISIÓN	CÓDIGO	FECHA	D M A		
FIRMA:					

CARACTERÍSTICAS DEL HOGAR

A. INFORMACIÓN BÁSICA DEL HOGAR					
Por favor complete esta tabla para todos los miembros del hogar					
A.1 ¿Cuántos miembros hay en este hogar?	A.2 ¿Cuántas mujeres?	A.3 ¿Cuántos hombres?	A.4 ¿Cuántos niños menores de 18 años de edad?	A.5 ¿Cuántos miembros en edad económicamente activa? (incluir todos: los que están empleados y los que están desempleados)	A.6 ¿Cuáles son los trabajos que generan mas ingresos a este hogar? (poner hasta dos empleos/fuentes de ingresos) Elegir dos opciones

CODIGOS A6 : TIPO DE OCUPACIÓN	1 = Agricultura en tierra propia o arrendada	8 = Empleada doméstica
	2 = Jornalero (trabajo agrícola)	9 = Maestro/docente
	3 = Empresa/comercio (comercio, restaurante, peluquería, almacén, turismo, empresa agrícola)	10 = Transporte público/privado (taxi/bus/camión)
	4 = Empleado independiente (carpintero, plomero, fotógrafo)	11 = Arenero
	5 = Obrero (construcción)	12 = Pensionado
	6 = Empleado en el sector privado (fábrica, turismo, etc.)	13 = Recibe ayuda social
	7 = Empleado en el sector público (municipio, gobierno etc.)	14 = Renta de arriendo/alquiler de propiedades
		15 = Remesa
		16= Otra (especifique)
		0 = No se acuerda/no sabe

B. TIPO DE VIVIENDA				
B.1 ¿De qué material estaba hecha la vivienda que tenían antes de 1985? 1= Casa de cemento/material/ladrillo 2= Casa de bareque/madera 3= Otro (especificar) 0= No se acuerda/no sabe	B.2 ¿Esta vivienda era...? 1= Propia 2= Arrendada 3= Prestada 0= No sabe/no se acuerda	B.3 ¿Inmediatamente después de la erupción/avalancha, donde vivió usted? 1= Albergue 2= Carpas 3= Casa arrendada 4= Casa de familia 5= Casa prestada 6= Misma casa (<i>para población original</i>) (<i>ir a B.6</i>) 7= Otro	B.4 ¿En qué año recibió ayuda de vivienda? 1= 1986 2= 1987 3= 1988 4= 1989 5= 1990 6= 1991 7= 1992 8= No recibió ayuda	B.5 ¿Considera que esta vivienda era...? 1= Mejor que la que tenía antes 1985 2= Igual a la que tenía antes 1985 3= Peor a la que tenía antes 1985 0= no sabe/no se acuerda

B.6 ¿En el 1995 en que casa estaba viviendo? 1= Misma casa (pasar a B8) 2= Otra casa 0= No sabe / No se acuerda	B.7 ¿Esta vivienda era...? 1= Propia 2= Arrendada 3= Prestada 0= No sabe/no se acuerda	B.8 ¿Entre el momento que recibió la vivienda (<i>vivienda anterior</i>) y 1995 hizo alguno de los siguientes cambios/mejoras a su casa? 1= Mejora de pisos (cerámica/madera) 2= Añadir cuarto 3= Pintura y decoración en general 4= Mejoramiento de techos 5= Agrandar espacios comunales de la vivienda (patio, frente de casa, etc.) 6= Mejoramientos en jardín 7= Mejoramiento en la cocina 8= otro (especificar) 9= ningún cambio 0= no sabe/ no se acuerda	B.9. ¿En el 2005 en qué casa estaba viviendo? 1= Misma casa (pasar a B11) 2= Otra casa 0= No sabe / no se acuerda	B.10 ¿Esta vivienda era...? 1= Propia 2= Arrendada 3= Prestada 0= No sabe/no se acuerda	B.11 ¿Entre 1995 y el 2005 hizo alguno de los siguientes cambios/mejoras a su casa? 1= Mejora de pisos (cerámica/madera) 2= Anadir cuarto 3= Pintura y decoración en general 4= Mejoramiento de techos 5= Agrandar espacios comunales de la vivienda (patio, frente de casa, etc.) 6= Mejoramientos en jardín 7= Mejoramiento en la cocina 8= otro (especificar) 9= ningún cambio 0= no sabe/ no se acuerda

B.12 ¿En qué casa vive actualmente?	B.13 ¿Esta vivienda era...?	B.14 ¿Entre el 2005 y actualmente hizo alguno de los siguientes cambios a su casa?	B.15 ¿Considera que esta vivienda es...?
1= Misma casa (pasar a B14) 2= Otra casa 0= No sabe / no se acuerda	1= Propia 2= Arrendada 3= Prestada 0= No sabe/no se acuerda	1= Mejora de pisos (cerámica/madera) 2= Anadir cuarto 3= Pintura y decoración en general 4= Mejoramiento de techos 5= Agrandar espacios comunales de la vivienda (patio, frente de casa, etc.) 6= Mejoramientos en jardín 7= Mejoramiento en la cocina 8= otro (especificar) 9= ningún cambio 0= no sabe/ no se acuerda	1= Mejor que la que tenía antes 1985 2= Igual a la que tenía antes 1985 3= Peor a la que tenía antes 1985 0= No sabe / no se acuerda

C. PROPIEDADES								
C.1 ¿A parte de su casa/solar, este hogar tenía o arrendaba otras propiedades/terrenos (parcela/finca) antes de 1985?	C.2 ¿Cuál era la actividad principal que realizaba con esa tierra/ propiedad?		C.3 ¿A parte de su casa/solar, este hogar tenía o arrendaba otras propiedades/terrenos (parcela/finca) inmediatamente después de la avalancha de 1985?	C.4 ¿Cuál era la actividad principal que realizaba con esa tierra/ propiedad inmediatamente después de la avalancha?		C.5 ¿A parte de su casa/solar, este hogar tenía o arrendaba otras propiedades/terrenos (parcela/finca) en 1995?	C.6 ¿Cuál era la actividad principal que realizaba con esa tierra/ propiedad en 1995?	
1= si 2= no 0= no sabe/no se acuerda <i>Si la respuesta es Sí ir a C.2 si es No/no se ir a C.3</i>	<i>(Escoger hasta dos opciones)</i>		1= si 2= no 0= no sabe/no se acuerda <i>Si la respuesta es Sí ir a C.4 si es No/no se ir a C.5</i>	<i>(Escoger hasta dos opciones)</i>		1= si 2= no 0= no sabe/no se acuerda <i>Si la respuesta es Sí ir a C.6 si es No/no se ir a C.7</i>	<i>(Escoger hasta dos opciones)</i>	

CÓDIGOS C.2, C.4, C.6, C.8, C.10	1 = Tierra para cultivo/ganado propio 2 = Tierra para cultivo/ganado arrendada 3 = Negocio/Almacén en local propio 4 = Negocio/Almacén en local arrendado	5 = Local/Casas/Apartamento para arrendar 6 = otros (especificar) 7= Ninguna 0 = no se
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C. PROPIEDADES (Continuación)				
C.7 ¿A parte de su casa/solar, este hogar tenía o arrendaba otras propiedades/terrenos (parcela/finca) en 2005? 1= si 2= no 0= no sabe/no se acuerda Si la respuesta es Sí ir a C.8 si es No/no se ir a C.9	C.8 ¿Cuál era la actividad principal que realizaba con esa tierra/ propiedad en 2005?	C.9 Actualmente, ¿A parte de su casa/solar, este hogar tiene o arrienda otras propiedades/terrenos (parcela/finca)? 1= si 2= no 0= no sabe/no se acuerda Si la respuesta es Sí ir a C.10 si es No/no se ir a C.11	C.10 ¿Cuál es la actividad principal que realiza con esa tierra/ propiedad actualmente?	C.11. ¿Si usted ha sido dueño de propiedades desde 1980s cree que el valor de ese terreno/propiedad ha cambiado? 1= ha subido 2= ha bajado 3= igual 0= no sabe

D. TRAYECTORIAS EN LAS FUENTES DE INGRESOS / SUSTENTOS DE VIDA					
D.1 ¿Cuál era la principal fuente de ingresos/empleo de este hogar antes de 1985?	D.2 ¿Esta fuentes de ingreso eran...? 1= Suficiente para cubrir las necesidades básicas del hogar 2= Cubría más que las necesidades básicas del hogar 3= Cubría parcialmente las necesidades del hogar 4= No cubría las necesidades básicas del hogar 0= No sabe	D.3 ¿Inmediatamente después de la erupción/ avalancha, este hogar? 1= Mantuvo la misma principal fuente de ingreso / ocupación que antes de la avalancha (incluye pensiones) 2= Había generado una nueva fuente de ingreso ocupación 3= Perdieron la fuente principal de ingreso/ocupación y no la recuperaron 0= No sabe/no se acuerda	D.4 ¿Inmediatamente después de la erupción/avalancha estas fuentes de ingreso eran ...? 1= Suficiente para cubrir las necesidades básicas del hogar 2= Cubría más que las necesidades básicas del hogar 3= Cubría parcialmente las necesidades del hogar 4= No cubría las necesidades básicas del hogar 0= No sabe	D.5 ¿En 1995, este hogar ...? 1= Mantuvo la misma principal fuente de ingreso / ocupación que inmediatamente después de la avalancha (incluye pensiones) que inmediatamente después de la avalancha 2= Había generado nueva fuente de ingreso / ocupación 3= Perdieron la fuente principal de ingreso/ocupación y no la recuperaron 0= No sabe/no se acuerda	D.6 ¿En 1995 estas fuentes de ingreso eran ...? 1= Suficiente para cubrir las necesidades básicas del hogar 2= Cubría más que las necesidades básicas del hogar 3= Cubría parcialmente las necesidades del hogar 4= No cubría las necesidades básicas del hogar 0= No sabe

CÓDIGOS D.1 - TIPO DE OCUPACIÓN / FUENTES DE INGRESO		
1 = Agricultura en tierra propia o arrendada	7= Empleado en el sector público (municipio, gobierno etc.)	12= Renta de arriendo/alquiler de propiedades
2= Jornalero (trabajo agrícola)	8= Empleado doméstica	13= Recibe ayuda social
3= Empresa/comercio/empleado independiente (comercio, 4= Arenero	10= Transporte público/privado (taxi/bus/camión)	15= Otra (especifique)
5= Obrero (construcción)	11= Pensionado	0= No se acuerda/no sabe

D. TRAYECTORIAS EN LAS FUENTES DE INGRESOS / SUSTENTOS DE VIDA (Continuación)													
D.7 ¿Cuáles fueron los principales problemas que tuvo que enfrentar este hogar para mantener o generar un nueva fuente de ingresos entre 1985 (inmediatamente después de la erupción/avalancha) y 1995?		D.8 ¿Cuáles fueron algunas de las medidas que tomaron para recuperar o generar nuevas fuentes de ingreso entre 1985 (inmediatamente después de la erupción/avalancha) y 1995?		D.9 ¿Qué factores externos ayudaron a que este hogar pueda recuperar/generar/mantener su principal fuente de ingresos entre 1985 (inmediatamente después de la erupción/avalancha) y 1995?		D.10 ¿En 2005 este hogar ?		D.11 ¿En 2005 estas fuentes de ingreso eran ...?		D.12 ¿Actualmente este hogar ...?		D.13 ¿Actualmente estas fuentes de ingreso son ...?	
1= Falta de oportunidades laborales/desempleo 2= Falta de oportunidades para capacitación 3= Problemas psicológicos 4= Falta de liderazgo político 5= No tuvo problemas 6= Otros (<i>especificar</i>) 0= No sabe/no se acuerda n/a= No aplica (<i>escoger hasta dos opciones</i>)		1= Cambiar de actividad 2= Acudir a las amistades/familiares 3= Acudir a las autoridades 4= Educación/capacitación 5= Migración 6= No tomaron medidas 7= Otro (<i>especificar</i>) 0= No sabe/no se acuerda n/a= no aplica (<i>escoger hasta dos opciones</i>)		1= Oportunidades laborales 2= Oportunidades de capacitación 3= Inversión publica 4= Inversión privada (empresas/industria) 0= No sabe/no se acuerda n/a= No aplica (escoger hasta dos opciones)		1= Mantuvo la misma principal fuente de ingreso / ocupación que en 1995 (<i>incluye pensiones</i>) 2= Había generado nueva fuente de ingreso ocupación que en 1995 3= Perdieron la fuente principal de ingreso/ocupación y no la recuperaron 0= No sabe/no se acuerda		1= Suficiente para cubrir las necesidades básicas del hogar 2= Cubría más que las necesidades básicas del hogar 3= Cubría parcialmente las necesidades del hogar 4= No cubría las necesidades básicas del hogar 0= no sabe		1= Mantuvo la misma principal fuente de ingreso / ocupación que en el 2005 (<i>incluye pensiones</i>) 2= Había generado nueva fuente de ingreso ocupación que en el 2005 3= Perdieron la fuente principal de ingreso/ocupación y no la recuperaron 0= No sabe/no se acuerda		1= Suficiente para cubrir las necesidades básicas del hogar 2= Cubre más que las necesidades básicas del hogar 3= Cubre parcialmente las necesidades básicas del hogar 4= No cubre las necesidades básicas del hogar 0= No sabe	

E. COBERTURA DE LOS SERVICIOS PÚBLICOS					
	E.1 ¿Qué servicios tenía este hogar antes de 1985 ?	E.2 ¿Qué servicios tenía este hogar en 1995 ?	E.3 ¿Qué servicios tiene este hogar actualmente ?	E.4 ¿Qué empresa/institución brinda estos servicios actualmente ?	E.5 ¿Cómo ha cambiado la calidad de los servicios desde 1995 ?
	1 = Sí 2 = No 0 = No sabe/ No se acuerda	1 = Sí 2 = No 0 = No sabe/ No se acuerda	1 = Sí 2 = No 0 = No sabe		1= Ha subido 2= Ha bajado 3= Igual 0= No sabe
Agua potable					
Electricidad					
Atención medica					
Educación primaria					
Educación secundaria					
Policia					

CÓDIGOS E.4 - ENTIDAD QUE PRESTA SERVICIO

- | | |
|----------------------------|-----------------------------------|
| 1 = Gobierno municipal | 5 = Empresa privada |
| 2 = Gobierno departamental | 6 = Ninguna |
| 3 = Gobierno nacional | 7= Público/privado |
| 4 = ONG | 8= otro (especificar) 0 = No sabe |

F. INVERSIONES PÚBLICAS EN EL MUNICIPIO A PARTIR DE 1995

	F.1 ¿Sabe usted si se han realizado estas obras públicas desde 1995?	F.2 ¿En caso de si, en que año? 0= No sabe/no se acuerda	F.3 ¿Qué entidad la realizó?
	1= Si 2= No (pasar G) 0= No sabe/ No se acuerda (pasar G)		
Una carretera			
Un hospital			
Un puente			
Una escuela			

CÓDIGOS F.3 - ENTIDAD QUE PRESTA SERVICIO

- | | | | |
|----------------------------|-----------------------------|------------|-------------|
| 1 = Gobierno municipal | 4 = ONG | 7= ninguna | 0 = No sabe |
| 2 = Gobierno departamental | 5 = Empresa privada | | |
| 3 = Gobierno nacional | 6 = Federación de Cafeteros | | |

G. INVERSIONES PRIVADAS EN EL MUNICIPIO A PARTIR DE 1995

	G.1 ¿Qué tipo de negocios/inversiones importantes se han realizado en este municipio desde 1995?	G.2 ¿Comparado con la situación antes 1985, cómo ha cambiado la cantidad de esa inversión privada desde entonces?
	1= Si 2= No 0= No sabe/ No se acuerda	1= Ha subido 2= Ha bajado 3= Igual 0= No sabe
Bancos		
Agroindustria		
Otra industria		
Comercio (incluye almacenes)		
Turismo		
Compra de casas (inmobiliario)		

H. CALIDAD DE VIDA	
H.1 ¿En qué momento este hogar ha estado más satisfecho con su calidad de vida (posesiones materiales, acceso a servicios etc.)? 1= antes de 1985 2= inmediatamente después de 1985 (erupción/avalancha) 3= en 1995 4= en el 2005 5= actualmente 0= no sabe	H.2 ¿Cuándo este hogar ha estado menos satisfecho con su calidad de vida (posesiones materiales, acceso a servicios etc.)? 1= antes de 1985 2= inmediatamente después de 1985 (erupción/avalancha) 3= en 1995 4= en el 2005 5= actualmente 0= no sabe

I. RECUPERACIÓN Y BIENESTAR			
I.1 ¿Qué actividades/acciones en este pueblo/comunidad han ayudado a mejorar el bienestar de este hogar después de la erupción/avalancha de 1985? (escoger hasta dos opciones) 1= Participación en organización Social/creación de fundaciones/ONGs 2=Fiestas, actividades comunitarias 3=Liderazgo comunitario 4=Oportunidades laborales 5=Acceso ayudas económicas 6= Oportunidades educativas/capacitación 7= Ayuda/apoyo psicológico 8= Apoyo de grupos religiosos 9=Otros (especificar)		I.2 ¿Qué actividades/acciones en este pueblo/comunidad han perjudicado el bienestar de este hogar después de la erupción/avalancha de 1985? (escoger hasta dos opciones) 1=Falta de oportunidades laborales 2=Falta de organización social/grupos/fundaciones 3=Discriminación entre población local y afectados 4=Fragmentación social/problemas sociales 5=Falta de sentido de pertenencia 6= Falta de apoyo psicológico/social 7= Falta de celebraciones/fiestas comunitarias 8= Drogadicción 9= Delincuencia común 10= Narcotráfico 11= otro (especificar)	

J. COMUNICACIÓN DEL RIESGO Y PREPARATIVOS					
J.1 ¿Cree que ha habido mejoras en la prevención de desastres desde 1985? 1 = si 2 = No 0 = no sabe		J.2 ¿Qué mejoras cree que se han hecho? Por favor escoja hasta tres (3) respuestas		J.3 ¿Ha visto alguna vez el mapa de amenazas para el Nevado del Ruiz? 1 = si 2 = no 0 = no sabe	

CÓDIGOS J.2 - MEJORAS EN LA PREVENCIÓN 1 = Mayor comunicación del riesgo 2 = Mejoras en los preparativos previos 3 = Inversión en infraestructura protectora (por ejemplo, muros de contención) 4 = Mejoras en la planificación territorial (para evitar construcción en zonas de riesgo) 5 = Mejoras en la comunicación de los sistemas de alerta temprana 6 = Mejoras en la respuesta/ayuda después 7 = Otra (especificar)
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J. COMUNICACIÓN DEL RIESGO Y PREPARATIVOS (Continuación)				
J.5 ¿Cree que este asentamiento/pueblo pueda ser afectado por una erupción/avalancha en el futuro? 1= si 2= no 0= no sabe	J.6 ¿En caso de una erupción/avalancha del Volcán Nevado del Ruiz sabría qué hacer? 1 = Si 2 = No 3 = No piensa que podría pasar 0 = No sabe	J.7 ¿Tiene este hogar un plan de emergencias? 1 = si 2 = no 0 = no sabe	J.8 ¿En caso de aumento de alerta por actividad volcánica, ¿en quienes confiaría más para tomar una decisión? <i>Escoger hasta dos (2) opciones</i>	

CÓDIGOS J.8 - CONFIANZA INSTITUCIONAL

1 = Cruz Roja	8 = Líderes comunitarios
2 = Defensa Civil	9 = Líderes religiosos
3 = Bomberos	10 = Servicio Geológico Colombiano
4 = Policía	11 = UNGRD
5 = Ejército	12 = Ecopetrol
6 = Redes sociales	13 = Otros (especificar)
7 = Medios de comunicación	14 = Ninguno

K. IMPACTOS DE OTRAS AMENAZAS

	K.1 ¿Este hogar ha sido afectada por esa amenaza? 1= Sí 2= No 0= No sabe	K.2 ¿En qué año pasó?	K.3 ¿cómo evalúa usted el nivel de afectación? 0= ningún impacto 1= Bajo impacto 2= Medio 3= Alto impacto	K.4 ¿Este hogar recibió apoyo después? 1= Si 2= No 0= No sabe
Inundaciones				
Deslizamientos				
Conflicto armado				

	K.5 ¿En caso que sí, que tipo de apoyo recibió? <i>(Puede poner hasta tres)</i>	K.6 ¿En una escala de 0 a 10 cómo evalúa usted la calidad del apoyo recibido? 0= Muy mala 10= Alta	K.7 ¿De quién recibió este apoyo?
Inundaciones			
Deslizamientos			
Conflicto armado			

CÓDIGOS K.5 - TIPOS DE APOYO DESPUES DE LAS AMENAZAS

1 = Económico (bono)
 2 = Alimentos
 3 = Insumos para las actividades productivas
 4 = Créditos
 5 = Vivienda reparada
 6 = Vivienda nueva (en el mismo lugar)
 7 = Vivienda nueva (reubicada)
 8 = Capacitación sobre cómo protegerse al futuro
 9 = Otros
 0 = No sé

CÓDIGOS K.7 - PROVEEDORES DE APOYO

1 = Gobierno municipal
 2 = Gobierno departamental
 3 = Gobierno nacional
 4 = ONG
 5 = empresa privada
 6 = Organismos de socorro
 7 = Otro
 0 = No sé

L PARTICIPACIÓN DE LA POBLACIÓN EN LOS PROCESOS DE DESARROLLO

	L.1 ¿Ha escuchado sobre los siguientes eventos o actividades? 1 = si 2 = no 0 = no sabe	L.2 ¿Ha participado usted en alguno? (si ir a L3, no ir a L4)	L.3 ¿En caso de Sí , con cuanta frecuencia participó?	L.4 ¿En caso de No , ¿cuáles son los motivos que le han impedido participar? (Pregunta abierta)
Reunión junta de acción de comunal				
Reunión municipal sobre prevención de desastres				
Movilización ciudadana				
Reunión sobre plan de gestión de riesgo municipal				
Elaboración del Plan de Desarrollo y Ordenamiento Territorial municipal				
Estudios de riesgo de desastre (Universidad/otra entidad)				

CÓDIGOS L.1 Y L.2 - SABE Y PARTICIPADO

1 = Si
 2 = No
 0 = No sabe

CÓDIGOS L.3 - FRECUENCIA DE LA PARTICIPACION

1 = Cada semana
 2 = Cada mes
 3 = Un par de veces al año
 4 = Un par de veces en la vida
 5 = Solo una vez
 6 = Cuando son temas importantes
 0 = No sabe