



THE UNIVERSITY OF
MELBOURNE

MINOR THESIS

INFRASTRUCTURE DOES NOT CREATE CAPABILITIES

“An analysis of the impacts of road construction in the capabilities of the indigenous craft women members of community based local network organisations in Santa María de Nieva, in the Amazon region of Peru, to define their livelihood, education opportunities and affordability.”

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Abstract

Background:

Research was conducted in Santa Maria de Nieva a small *city*, capital of the province of Condorcanqui in the Amazonas region, Peru. This region is contentious because of the pressures posed by global interest and the national export economy of oil extraction.

Research aim:

The aim of this research is to inform policy decision making, by linking the impacts of road infrastructure with the likelihood of offering a better quality of life in the regions where they are developed. The research focuses on analysing the impacts, on the capabilities of a vulnerable segment of the population: Indigenous women who work in handicrafts. The capabilities analysed are based on the functionings of livelihood, education, and affordability.

Research Design:

Based on a descriptive case study (Yin 1984), the research collects 14 in-depth interviews. Some of them were conducted in Awajun with an interpreter to Spanish, and some of them were done directly in Spanish, depending on the interviewees' preference. The operationalisation of the capabilities approach has been done through the author's interpretation of the responses, crossing information among the different questions of the interviews and contrasting the responses throughout the interviewees.

Results and discussion:

The findings reinforce previous research on the impacts of road construction on livelihoods, in that they increase access to new markets and higher income levels. The analysis of the impacts of infrastructure on education, is related to higher levels of migration opportunities due to economic surplus produced by the impacts of the road on livelihood. The analysis of the impacts of the road on affordability, suggesting lower price of transport costs, but a sustained demand on foreign products, encourages unfair trading settings. This trading inequality does not allow the indigenous women to have the capacity of choice to decide whether they trade or not. Among other explorations and unexpected findings, the results of this thesis supports the statement that 'Infrastructure does not create capabilities'. This opens paths for new research projects and policy recommendations.

Declaration of authorship:

The content that this thesis presents is inedited work from an empirical research designed by the author. It has not previously been published or awarded with any other degree or diploma in any educational institution, and to the best of my knowledge, contains no material previously published or written by another person, except where the reference is made throughout the text of the thesis.

Signed:

Date: 5th of June 2017

Acknowledgements:

I would like to thank my supervisor Dr. Jennifer Day, who has kindly advised me during this year to develop this master thesis to the best of my possibilities, and has encouraged me to reflect about the connection between practice and theory from a capabilities approach. It has been a very inspiring year!

The thesis you are about to read intends to add a minor contribution to the immense research gap needed to open dialogue and conciliate development paths in Peru's future. Being one of the fastest growing economies in Latin America, and competing in a global context to attract investment, one of Peru's major challenges is posed by the current social conflicts among different social stakeholders in inner regions of the country. Global pressures and international agreements are being signed to expand Peru's international relations, which exportations are mainly related with minerals, ore and mineral oil's extraction. Commonly, these global activities are in conflict with indigenous lands, access to water and environmental impacts product of these activities. While having great mineral, hydrocarbon and forestry resources enhances Peru's economic potential, its current and future governments need to conciliate with its average of 30% of indigenous population, in order to enhance its harmonious future development.

In 2009, the region of Amazonas was the scenario of a very sad event called "El Baguazo". Product of Land Conflicts amidst the indigenous population (Awajun and Wampis people), traditionally owners of the land of the Amazonas region, and the former government of the president Alan Garcia. As a consequence of the then recently signed Free Trade Agreement with the United States of America, Alan Garcia issued legislative decrees to create a special regime to award titles to private developers, bypassing the required legal steps of previous consultation, that Peru is obliged to follow as part of its participation in the International Labor Organization's Convention 169 on indigenous peoples' rights. The lack of communication and dialogue imposed by the government for over a year, among politicians and the claim of indigenous population on land use management in their region, ended up in an indigenous revolt. Over 1500 indigenous people took the access roads and invaded the local oil extraction station with 38 policemen and one engineer inside of it. The government response was to send 369 members from the DINOES (National Direction for Special Operations) who with military forces, entered in the region to stop the riot. The result: 23 policemen, 10 civilians killed, one missing person and hundreds of injured civilians. This event has been

widely documented on documentaries like “When two worlds collide” and “La Espera” (The wait), as an example of one of the biggest government’s failures to deal with social claims. This thesis is due on the 5th of June of 2017, the 8th anniversary of this conflict. I would like to acknowledge this event as one of the reasons that encouraged me to do research in this region, despite the limitations it implied.

In 2012, a research project from the Pontificia Universidad Católica del Perú (PUCP), decided to take on board the challenge of researching 4 small cities, all of them capital of their provinces, in different inner regions of Peru. The project, “Transversal: Integration actions in the Peruvian territory”, chose Santa Maria de Nieva as one of them. That is how I had my first contact with this reality and where the beginning of my questions started. Under the leadership of Dr. Jose Canziani¹ and a multidisciplinary team, we encountered a colonized city, and saw a series of local challenges within the same small space: Chronic malnutrition, lack of local values recognition, lack of proper basic services, extreme poverty, impacts of illegal mining with high levels of pollution to the river, lack of government presence, among other issues. Whilst, we also encounter a local community willing to be heard to create paths towards that longed development process, that is repeatedly mentioned in political campaign discourses, but occasionally forgotten after elections.

In this journey, I met Luzmila Bermeo Chuinda, the president of the indigenous craft women association Yapit, who was part of the workshops undertaken as part of the project Transversal. I would really like to thank her, because without her support, I would not have been able to contact the interviewees for this research.

I would also like to acknowledge my mother, Dr. Luzmila Mendivil Trelles de Peña. Who after being granted permission by the Human Ethic Committee at The University of Melbourne, and despite her very busy agenda as the director of the Research Centre of Educational Services at the Department of Education at PUCP, travelled more than 1300 km away from my hometown, to collect the data and interview 14 indigenous craft women who kindly accepted to be part of this research. I would like to acknowledge them, and thank them for their time and effort to respond to my questionnaire and share their perspectives. I know it was a hard process for both sides, because of language barriers, I want to thank Mrs. Bermeo for interpreting and helping in the communication process. I know that it was difficult for the

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interviewees to respond to so many questions that are hardly asked, and that in some cases they did not understand why they were being posed. I have learnt a lot from that effort. I would also like to thank my father Roberto Peña Chavez, for joining my mother on the journey to Santa Maria de Nieva and his assistance in the graphic documentation of the experience, and everything that was needed. I would also like to acknowledge my sister, and my family, who have been a support throughout this master process and have been always there, despite the physical distance. Thanks to Vanessa and Mari who came all the way from Peru, and also encouraged me writing this thesis.

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CHAPTER 1: INTRODUCTION²

BACKGROUND AND CONTEXT

RESEARCH SIGNIFICANCE

RESEARCH QUESTION AND METHODOLOGY

THESIS STRUCTURE

²Word count: 1040

BACKGROUND AND CONTEXT

After becoming a regional economic growth example and now the seventh strongest economy in Latin America (Focus economics 2017), Peru's economy relies on exports such as ores and minerals, food and mineral fuels. In a global context, Peru competes with other peer economies to attract investment. These global activities are in tension with indigenous lands, access to water and environmental impacts. Peru is rich in natural resources, due to its geographical, and biological diversity. In addition, its cultural and social heterogeneity is represented by an average of 30% indigenous population. Planning in the face of this diversity, is a major challenge that Peru's governments need to address in order to encourage a *just diversity* (Fincher & Iveson 2008) to enhance its harmonious future development.

The province of Condorcanqui in the region of Amazonas, (See [Figure 1](#) on page 9) exemplifies these challenges. With a 75% of indigenous populations (INEI 1993) and rich in natural resources, it has been the scene of previous land management conflicts among indigenous communities and the National government, including the Baguazo Conflict in 2009. Santa Maria de Nieva (SMN) is the capital of the province, and represents the urban centre among these rural communities (See [Figure 2](#) on page 9). This city, has experimented socio economic growth due to formal economies led by investments in oil extraction and road infrastructure, among others, and also informal economies, such as illegal logging, illegal mining and drug-trafficking. This research project analyses the impacts of the formal investment of the road construction on the indigenous handicraft women as part of community based organisations.

RESEARCH SIGNIFICANCE

The significance of this research is to inform policy decision making linking the impacts of road infrastructure with the likelihood of offering a better quality of life in the regions where they are developed. The research focuses on a vulnerable segment of the population: Indigenous women who work in handicrafts. In Peru, women and men voices are not equally heard, and the fact that these women are indigenous adds to their marginalization. Despite this situation, they are in constant search for economic opportunities to improve the quality of life for themselves and their families, whilst searching for local community support in their social networks.

This research project analyses the impacts of road infrastructure in the capability of the target population to define their livelihood, education and affordability functionings freely. Previous research analysed in this project, do not recognise different voices among indigenous populations or the influence of infrastructure on their capability to decide their well-being.

RESEARCH QUESTION AND METHODOLOGY

This research aims to inform with a wider knowledge of how infrastructure interventions impact in the population. The final objective is to inform the creation of more inclusive urban policies in Peru, with an emphasis on jungle urbanisation.

The research question is: **How does the construction of the road in SMN affect the capabilities of the indigenous craft women in order to define their livelihoods, education opportunity (and their family) and food affordability, freely?**

The methodology is based on a descriptive case study (Yin 1984) and conducts a qualitative analysis of 14 in-depth interviews of indigenous women who work in handicrafts and belong to the "handicraft network" Yapit, a community based association which works with women from different communities around SMN, and Condorcanqui province. The aim of this organisation is to assist them in the commercialisation of their products among other common necessities.

Due to the author's constraints to travel to the area, data was collected by Dr. Luzmila Mendivil, senior researcher with experience in the region. Four of the individual in-depth interviews were conducted in Spanish, three in Awajun, and seven were done in a group setting in Awajun. The translator from Awajun to Spanish is an Awajun native speaker who speaks Spanish fluently. The translator from Spanish to English is a Spanish native speaker who speaks English fluently. While these translations are reliable, there might be some details lost in translation from Awajun-Spanish-English.

The operationalisation of the capabilities approach has been done through the author's interpretation of the responses, cross referencing the different questions of the interviews and contrasting the responses throughout the interviewees.

The research limitations are that it is focused on the target population, and no other segments of the population. This opens pathways for new research to make comparative studies.

THESIS STRUCTURE

The thesis is structured on 5 chapters. The first chapter presents the Introduction, as explained above. The second chapter presents the Literature review and is divided in 4 four parts: the first part, is an introduction that explores the dichotomy of urban and rural definitions, the second part shows six examples throughout the world on the impacts of road infrastructure in remote communities, the third part, presents the capabilities approach proposed by Nussbaum & Sen (1993) and analyses its relevance in the case study. The fourth part concludes on the literature gap and research significance. The third Chapter presents the Methodology and is divided in two parts. The first part represents a reflection on Peru as a setting, starting from an economic analysis, relevant for the area, following with the challenges of the jungle region and in particular challenges faced by Awajun indigenous women. The second part is divided in seven sections of the chapter, presenting the methodology design: research question, operationalisation, involved population, sampling scope, research limitations, data collection and data analysis. The fourth chapter presents the results, which are divided in four sections. The first three sections correspond to the logics of the research question: Impacts on livelihood opportunities, impacts on education opportunities and impacts on affordability. The final section presents a reflection of the unexpected findings and its relation to the logics of the research question. Chapter 5 concludes with the discussion of the results and links it to the literature review. The findings show similarities with research undertaken in the Borneo Island and Central Himalaya. The discussion about the impacts of road construction on the capabilities of the target population to define their livelihoods, education opportunities and food affordability, freely, conclude in the overarching statement that 'Infrastructure does not create capabilities', if it is not articulated with programs that assist the population in the definition of their functionings, especially the livelihood functioning.

CHAPTER 2: LITERATURE REVIEW³

INTRODUCTION

IMPACTS OF ROADS ON REMOTE COMMUNITIES

CAPABILITIES APPROACH AND ITS RELEVANCE IN THE CASE STUDY

CONCLUSION

³ Word Count: 3211

INTRODUCTION

This section reviews previous literature relevant to this research project and is divided in four parts. The first part presents an introduction of the literature analysed and an overview of urban/rural definitions that backup why Santa Maria de Nieva (SMN) is labelled as a “city”. The second part, shows an analysis of different approaches and previous research about the impacts of road construction on remote communities. The third part, links the capabilities approach proposed by Martha Nussbaum and Amartya Sen (1993) with the case study and justifies why it is relevant for the research project. Finally, this section concludes in a reflection of the literature analysed and argues that the research gap is in developing disaggregate studies that recognize the different voices among indigenous populations and the impacts of infrastructure in the existing social networks.

The aim of this research is to inform policy decision making linking the impacts of infrastructure with the likelihood of offering a better quality of life in the regions where they are developed. The results of this research project, show that built infrastructure is not enough to create capabilities or a better quality of life for all involved.

Why this research project refers to SMN as a city?

The challenge of identifying urban from rural regions faces practical and ethical implications (Day et al 2017) to define services and policies for different regions. Day et al (2016) argue that the UN World Urbanization Prospects (WUP) database, to measure urban populations globally, can undermine cities, depending on the size of the *seed city* (Day et al 2016, p.71) to define urban agglomerations. The authors present a practical application of that database in Sri Lanka, and discover that under the WUP parameters a number of cities are undermined, and highlight the importance of local knowledge in order to define urban from rural areas.

From a different perspective, Srivastava (2015) identifies the Census parameters in India to define urban areas based on 3 factors: “I) a minimum population of 5,000, II) at least 75% of the male working population engaged in non-agricultural occupation and III) a density of population of at least 400 per sq. Km.” (Srivastava 2015, p. 53). Based on this definition, all settlements not consider urban, are defined as rural. His approach goes beyond the urban/rural dichotomy and defines ‘*peri-urban areas*’ as linkages among rural and urban settlements. The author recognises that these areas experience rapid transformations, land use changes, agricultural intensification, changes in infrastructure systems, and intense pressure on the natural resources (Srivastava 2015, p. 54).

From a Peruvian national perspective Remy (2015) analyses the levels of urbanisation in Peru, and argues that, the national Census overestimates the percentage of urbanised population assigning it as 79.9%. However, if bigger “*seed cities*” of 10,000 inhabitants were considered, and do not count the capital city: Lima, with a 31% of the Peruvian total population, the country will only categorise 47% of the population as urbanised. She states that in the Highland and Jungle regions, 65.92% and 60.88% respectively (Remy 2015, p.76), are settlements with less than 10,000 inhabitants and therefore new policies need to be envisaged for these areas. These policies, according to Remy (2015), should recognise Peru’s rurality and plan to provide urban services for the rural population. Under this approach there should be access to road infrastructure and services such as municipal transport and good quality boarding high schools in ‘*intermedium cities*’ that serve as an urban hub.

SMN presents the trends that Remy (2015) recognises for the jungle region: Migrant population and farmers who ‘colonise’ these areas, and a shift towards a commercial economy and financial services. It has undergone population growth from 3 thousand people in 2007 (INEI, 2007) to 5 thousand people in 2015 (RENIEC, 2015), driven by formal and informal economies. This has caused a shift from a subsistence economy to a commercial economy impacted among others, by infrastructure projects in the city. The region is inhabited by the ethnicities Awajun and Wampis, with more than 43 thousand people (INEI, 2007) who recognise SMN as their urban centre (see [Figure 1](#) and [Figure 2](#) on page 9). Therefore this thesis recognises SMN as a *seed city*, a peri-urban region and an ‘*intermedium city*’. Since the aim of this thesis is not to delve in the discussion of the definition among urban and rural, but acknowledge its importance for policy decision making, this project has decided to refer to it as a *city*.

Figure 1: Pena R.M. 2015, *Localisation of Santa María de Nieva, Amazonas region, Peru.*

Unpublished

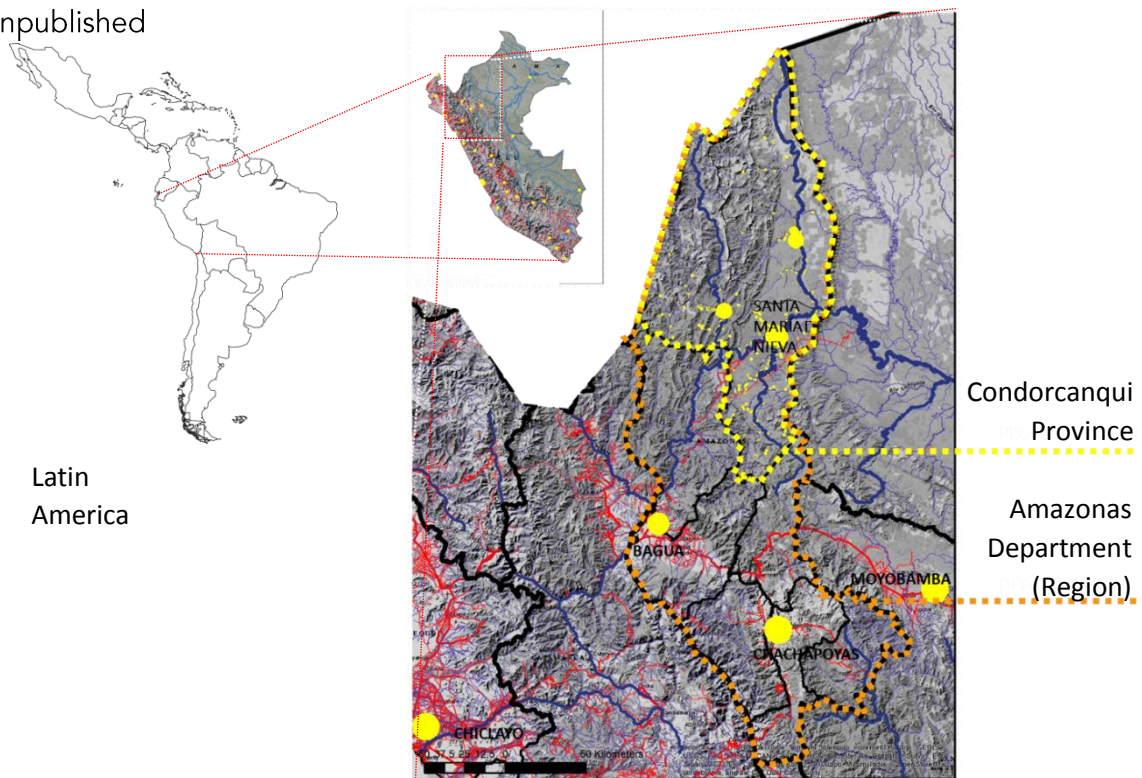
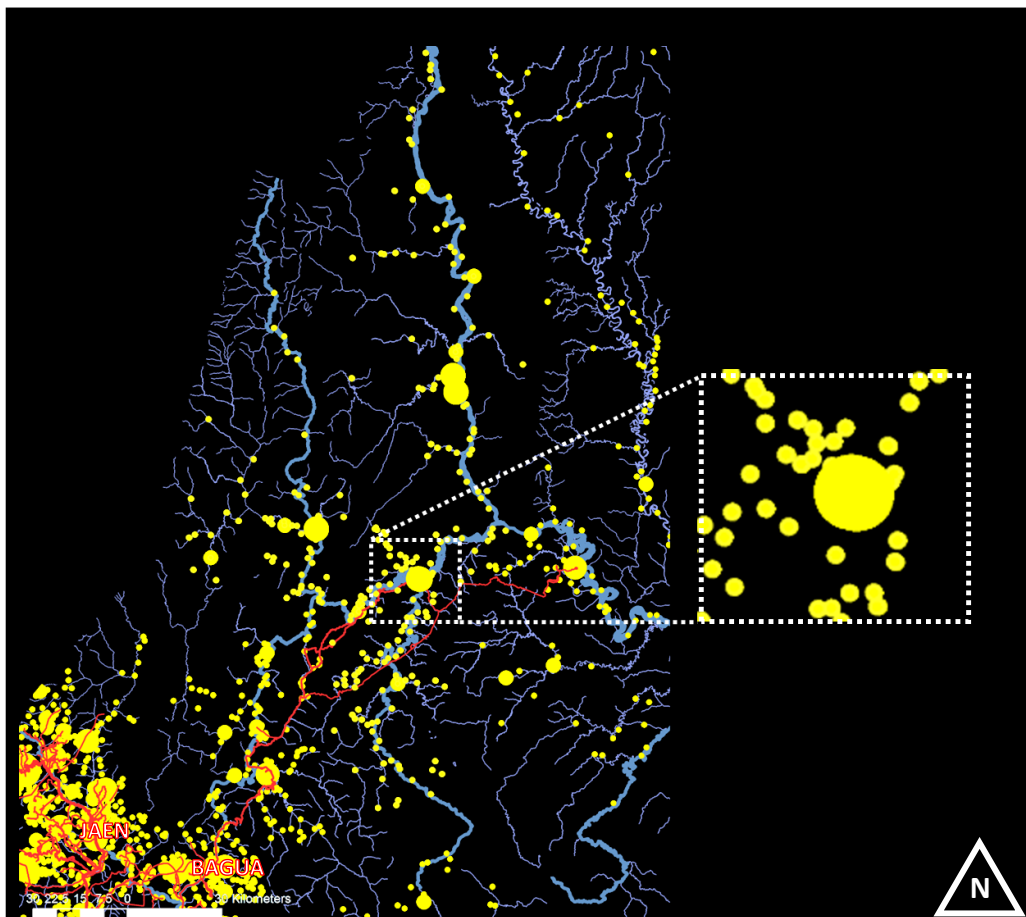


Figure 2: Pena R.M. 2015, *Urbanisation Patterns along rivers and roads.* Unpublished



IMPACTS OF ROADS ON REMOTE COMMUNITIES

This section presents several approaches with regards to the impacts of road construction in remote areas (Brown 1984, Adam, Kneeshaw & Beckley 2012, Jansen et al. 2006, Charlery et al. 2016, Khandker & Koolwal 2011, Selvadurai et al. 2013 & Atef & Moselhi 2013). All of the literature reviewed analyses the difference between the settings prior and after road construction, presenting a shift in the economic dynamics of the area.

Adam, Kneeshaw & Beckley (2012) analysed the impacts of road construction from an indigenous perspective in Kitcisakik, an Algonquin community in Quebec. They found that roads affect intra and inter aboriginal dynamics. Describing how the roads created new borders and access that disturbed their established boundaries, creating conflicts among aboriginal communities. Also the access facilitated intense forestry industry with environmental impacts in their territory. Previously isolated conditions, and inherent socio-environmental relationships in aboriginal cultures, make them the most likely to benefit, and at the same time the most vulnerable to the impacts of road development (Adam, Kneeshaw, Beckley 2012). In this case, roads were associated with changes in the traditional roles and practices which benefited self-focused habits in detriment of communal traditions. Other negative impacts related to landscape degradation, intense land use, increased poaching, illegal logging and squatting. Notwithstanding, some of the literature recognise road construction as the “solution to the poverty trap” (Adam, Kneeshaw, Beckley 2012, p.1). The benefits are associated with economic growth, and national wealth, pointing out that better transportation improves livelihoods, provides better access to markets, increases social mobility, migration and increases economic opportunities and access to education. While this research analyses the impacts of the road construction from an aboriginal perspective, it does not specify the levels of urbanisation or the willingness of the aboriginal population to integrate into the “modern” society, neither considers the different voices among aboriginal populations, such as women or children.

In an analysis of the long-term impacts of road construction in Bangladesh, Khandker & Koolwal (2011) found that the long-term consequences in employment opportunities are related to the socio-economic background of the household. Households with non-farm related backgrounds had access to job opportunities faster than other households (Khandker & Koolwal 2011), benefiting from the shift between agriculture related economies to non-farm related activities. In the short run, however, they found two major benefits in poorer households which are “*higher per capita expenditure and lower transport costs*” (Khandker

& Koolwal 2011, p.3). Nonetheless, in the long run, commercialization, rising land values, and shifts in growth across local farm and non-farm sectors may diminish economic opportunities for poor households (Khandker & Koolwal 2011). According to their findings, in the long run, outside transport costs, affordability as a whole didn't fall significantly, *"this indicates that access to markets may be improving but may also generate a rise in demand that sustain market price levels"* (Khandker & Koolwal 2011, p.17). In regards to education opportunities, they found that school enrolment improved due to a better access to schools, which *"could generate higher demand for labour in the long run"* (Khandker & Koolwal 2011, p.22). These findings will be further analysed in the discussion section.

The relationship of previous households' activities and the impacts of the road construction stated by Khandker & Koolwal (2011), is also explored in a study of rural development in Honduras. Jansen et al. (2006) found that road density is associated with shifts in livelihood strategies, land management practices, increased labour, and a more intense use of soil, which in their research case study, was related with higher production of coffee. Their findings show that *"the smallest farms with the highest proportion of off-farm work earn higher incomes than pure basic grains farmers"* (Jansen et al. 2006, p. 95). They suggest as a strategy to improve household income, to improve off-farm work opportunities. These findings reinforce Khandker & Koolwal (2011) statement that *"employment opportunities are related to the socio-economic background of the household"*.

Unlike Adam, Kneeshaw & Beckley (2012), in a study of the effects of new roads on environmental resource use in the Central Himalaya, Charlery et al. (2016) stand that *"infrastructural development can be achieved without negative consequences of excessive and unsustainable environmental exploitation while having positive overall welfare effects in terms of total household income."* (Charlery et al. 2016, p. 15). Their findings show that the new road had positive effects on household environmental income and negative effects on their environmental reliance, making them less dependent on environment related activities. It is important to consider that this research only analysed short-term impacts after the road construction, which means that it is possible that in the long run, environmental exploitation and illegal wood extraction could arise in the area.

In research on the development perceptions of the Penan Natives in the area of Bintulu, in Sarawak, one of the two Malaysian states in the Borneo Island. Selvadurai et al. (2013), found that they also welcome the impacts of road construction related with adequate provision of amenities and infrastructural development. Nonetheless, they are against the development that disrupts their livelihood and habitat, involving activities such as logging, oil palm

plantation and major infrastructural projects. The Penan natives are excluded from mainstream market development and their exposure to the market ideals puts them in an “adaptation” state, in which they need to gain access to new skills, information, and education to get a better access to welfare. This article discusses the perception that the dominant population have of the native community, in which the mainstream idea is that their lifestyle is backwards and that in order to access to “development”, they need to leave their traditional lifestyle (Selvadurai et al. 2013, p.76). This statement contradicts the Penan Native perception to protect the indigenous right to maintain their traditions. Selvadurai et al (2013) suggest that future research should explore models of rural development to facilitate adequate transitions for “*Penans social and economic upliftment without destroying their key cultural identity and economic resource.*” (Selvadurai et al. 2013, p.77). While being different realities, the discussion section of this research reflects on the similarities with the findings of Selvadurai et al (2013).

In a Peruvian context, Brown (1984) analyses the impacts of the marginal road in the Awajun community in the Mayo River, south from SMN. He mentions that this communities, have more favourable conditions that the communities in SMN, however, there are some similarities. Brown (1984, pp. 157) states, that the presence of “civilization” is creating a dependency on foreign goods and therefore, the Awajun communities are losing their autonomy. These findings will be discussed further in Chapter 5.

This section has analysed six case studies of impacts of road construction in remote communities throughout the world. Three out of these cases (Jansen et al. 2006, Khandker & Koolwal 2011, Selvadurai et al. 2013) argue that the previous socio-economic conditions are definitive to the impacts of road construction in the population. While this is quite obvious, their methodologies are not quite focused to analyse those different backgrounds and recognise the different voices among aboriginal perspectives. This represents a gap in the literature which this project aims to address.

On another hand, while there is a recognition of the economic benefits (Jansen et al. 2006, Khandker & Koolwal 2011, Selvadurai et al. 2013, Charlery et al. 2016), in the short-term, due to better access to schools, labour opportunities, decrease in transport costs, increase in household income and expenditure. There are research gaps in the economic relations to which these roads connected the remote communities to. For example, there is a lack of information about the previous situation in the researched regions and therefore, the relevance of the road constructions, which could potentially affect the result of their findings. There is also a lack of information on the situation of the indigenous communities affected

by these roads and the relation with what Selvadurai et al (2013) consider as 'dominant population'. This research project delves in these two gaps.

CAPABILITIES APPROACH AND ITS RELEVANCE IN THE CASE STUDY

The capabilities approach was first proposed by Nussbaum & Sen (1993, p. 3) and defined as *'the capability of a person refers to the various alternative combinations of functionings'* and that *'the capability of a person corresponds to the freedom that a person has to lead one kind of life or another.'* This research project assesses to what extent does the presence of the road facilitate or constrain the capabilities of the indigenous craft women in SMN and how does it impact in the development of the area.

While recent research by Yang & Day (2016), focuses on quantitative approaches to measure *'people's real choices and the importance of different choices to individuals' welfare after resettlement'* (Yang & Day, p. 97). I present a complementary qualitative perspective to analyse the capabilities of indigenous craft women, through in depth interviews. This methodology allows the researcher to analyse the underlying factors allowing them or constraining them to make their choices.

The reflection of Nussbaum & Sen (1993) of the capacity of a person to choose among a combination of functionings is based on what Sen defines as *"functionings represent parts of the state of a person-in particular the various things that he or she manages to do or be in leading a life"* (Sen 1993, p. 31). According to Sen (1993, p.33) *"The capability of a person depends on a variety of factors, including personal characteristics and social arrangements"* and a full accounting of individual freedom must pay attention to the person's other objectives (e.g social goals not directly related to one's own life). Sen proposes to classify points to evaluate interest in assessing human advantage, based in two distinctions: firstly, the promotion of the person's well-being and secondly, the pursuit of the person's overall agency goals. As he suggests, *"The two distinctions together yield four different concepts of advantage, related to a person: (1) 'well-being achievement', (2) 'agency achievement', (3) 'well-being freedom' and (4) 'agency freedom'."* (Sen 1993, p. 35).

This research progresses the approach, recognising that capabilities are defined in the space of functionings (Sen 1993, p. 38), which according to Sen, are important to be seen in relation

to the relevance of choice in our lives. He defines a set of 'basic capabilities' as the *"ability to satisfy certain crucially important functionings up to certain minimally adequate levels"* (Sen, 1993, p.41).

While this proposal aimed to delve into the research of the *'well-being freedom'*, and its relation to the capability of a person to actually achieve a functioning or midfare. There were language and communication limitations during the interviews, where the questions were not directly answered in those terms. However, contrasting the testimonies and the responses among each interview, I could infer certain indicators that define their capability of choice.

This capability of choice is based on "freedom". Sen (1993, p. 44) emphasises the way it *"may be enormously helped by the choice of others, and it would be a mistake to think of achievements only in terms of active choice by oneself. A person's ability to achieve various valuable functionings may be greatly enhanced by public action and policy"*. While he acknowledges the relevance of active choice by a person, the fact that public action impacts on our capabilities, is relevant from an urban planning and policy evaluation perspective.

Considering that freedom and capabilities are interrelated, and that in order to *'satisfy certain crucially important functionings'* (Sen, 1993, p.41) the livelihood choice is determinant, I have focussed on the basic decision of **livelihood** and how it has been impacted after the roads construction. The functioning of livelihoods will be crossed with **the education level and affordability**, which are also crucial for the decision making process of livelihood.

Alkire (2008) highlights the importance of the prospective possibilities of Amartya Sen's capability approach as a *"working set of policies, activities, and recommendations that are considered, (...) to generate considerable capability expansion"* (Alkire 2008, p.30). In this regard, the relevance of the approach is that it guides policy under principles such as equity and sustainability, which are relevant to plan for communities especially in developing countries.

Equity and sustainability are key principles for the area of SMN, Brown (1984) presents the inequality experienced by the Awajun community lived in the Mayo River after the construction of the marginal road. This dynamic is replicated in SMN, thirty-two years later. Hence, it is important to evaluate the impacts of the road from a qualitative perspective that incorporates a *sustainable approach* considering the dynamics between the city, its

population and the environment, and an *equity approach* that considers the population as a whole, especially the Awajun community.

CONCLUSION

In summary, this research project explores the impacts of public action and policy represented by the construction of the road, and how it facilitates or constrains the capabilities of the target population to choose their functionings freely.

While the examples presented in the section of the Impacts of roads on remote communities in Canada, Bangladesh, Honduras, Borneo Island, Peru and Central Himalaya, show the benefits and constrains of these cases. They do not explore the decision making capability to define their functionings, or the future expectations of the interviewed population. This is a key point of this research, in which I state that Infrastructure does not create capabilities. This statement is also based on the previous literature reviewed and on the results of the interviews.

It is important to acknowledge that the 'target population' explored in this research project is based in a context of gender inequality. Women and men do not have the same decision making opportunities in Peru, and the fact that these women are indigenous, adds a factor in which their voices are less heard. In addition, this population is in constant search for economic opportunities to improve their daily income and help their children to access to new opportunities. The handicraft women network is a way of organisation to accompany their effort.

Finally, the literature prior, has not analysed the impacts of road construction in the regional dynamics, changed by the connections to these remote communities. Moreover, they do not distinguished the different voices among indigenous populations. This research project recognises that every segment of the population has different claims and needs, and listening to the voices of the less heard, such as indigenous handicraft women, could help to work towards enhancing a '*just diversity*' (Fincher & Iveson 2008) among our cities and society.

CHAPTER 3: METHODOLOGY⁴

THE SETTING: Peru, the economic miracle and the challenge of a diverse country. The Amazonian region an area of rapid urbanisation, and the crisis of indigenous women.

THE RESEARCH METHOD: Research Question, Operationalisation, Involved population, Sampling Scope, Limitations, Collection of the data, Data Analysis

⁴ Word Count: 2590

There is a broad body of literature that explores the impacts of road development in remote communities (Adam, Kneeshaw & Beckley 2012, Atef & Moselhi 2013, Charlery et al. 2016, Khandker & Koolwal 2011), however, there is a lesser body of literature exploring these impacts from an indigenous perspective (Selvadurai et al. 2013, Brown 1984). Even the literature that analyses the impacts of road construction from an aboriginal perspective, does not recognise or disaggregates the different voices among the indigenous populations, neither the impacts of these interventions on the existing social and regional networks.

This research project aims to contribute into filling that gap in the literature, and aims to delve into the analysis of the impacts of road construction interventions in a particular vulnerable population group, like is the indigenous craft women. This section will firstly inform why I have focused on this region of Peru, by explaining the setting and secondly, it will present the research design in order to answer the research question.

THE SETTING: Peru, the economic miracle and the challenge of a diverse country. The Amazonian region, an area of rapid urbanisation, and the crisis of indigenous women.

According to Focus Economics (2017), Peru represents the seventh economy in Latin America. Its relentless economic growth from 2004 to 2013 (Ross and Peschiera 2016) has made economists refer to it as the “Peruvian Miracle” for its average GDP growth of 6.4 percent between 2004 and 2013 (Ross and Peschiera 2016, p.38) after a long period of socio-economic instability. This economic growth showed positive outcomes such as the reduction of poverty and extreme poverty rates. Nevertheless, Ross and Peschiera (2016) also recognise that there is a high level of inequality among rural and urban settings, presenting poverty rates of 53 and 15 percent, respectively. Along the same line, Trivelli (2016) and Portocarrero (2015) argue that despite its accomplishments, there is a big challenge in the redistribution of economic growth. Portocarrero (2015) argues that the majority of the population which is no longer statistically considered poor or extreme poor, are still vulnerable due to a lack of access to education and health services. And Trivelli (2016, p.440) assures that the government has not yet accomplished to provide a basic package of services that every Peruvian is entitled to.

Due to its ecological diversity, Peru’s biggest exports are ores and minerals (over 50% of total export), food (21%) and minerals fuels (12%) (Focus Economics 2017). According to the

ecological map created by the Oficina Nacional de Evaluación de Recursos Naturales in 1976 (ONERN 1976), it presents 84 out of the 120 ecological life zones defined by Holdridge in 1967 (Holdridge 1967, p. 14, ONERN 1976). This diversity in terms of geographical, cultural, social and biological features, represents a challenge for planning for the cities located in each territory. Currently, land use planning policies do not encompass the variety of these geographies or adapt to these areas.

With both oil extraction and a large number of aboriginal population in the territory, the province of Condorcanqui, in the region of Amazonas (see [Figure 1](#) on page 9), represents a challenge not only because of the socio demographic dynamics that are transforming the land use, population density changes leading to a higher density area of rapid growth (PNUMA, OTCA & CIUP 2009. P.21), but also because of the past conflicts among the State and indigenous population such as “El Baguazo” that occurred in 2009 (see the acknowledgments and Barrera-Hernandez 2009 for further information).

This research project aims to focus on “Santa María de Nieva” (SMN) as a case study, a small *city* in the north jungle of Peru which is the urban centre of the territory of the ethnicities Awajun and Wampis ([Figure 2](#) on page 9). This population, represents more than 43 thousand people (INEI, 2007) that recognize SMN as the closest *city* to the “modern State”. This area has been experimenting growth due to formal economies represented by projects of oil extraction, leading to the building of infrastructure (road, bridges), and the implementation of government administration institutions and public services, such as hospitals and education infrastructure. On the other hand, the city has also been growing due to informal economies, such as illegal mining, drug-trafficking and illegal logging, all with severe ecological impacts such as water pollution and deforestation. Economic growth has also encouraged a population growth turning from around 3 thousand people in 2007 (INEI, 2007) to approximately 5 thousand people in 2015 (RENIEC, 2015). This exponential growth has catalysed a series of infrastructure works to serve the population in the *city* and the surrounding areas.

From a national political discourse, road construction to rural areas is related to announcements of “better quality of life” through a higher presence of the National State. In this context, the construction of the road to connect SMN with the wider region network, which was finished in June of 2015, represents a major element of change in the area and poses the general question of to what extent this road facilitates a better quality of life for the population. Thus, this research project explores the impacts of the road construction on

the capabilities of the target population –to access to a better quality of life- by focusing on three aspects: access to livelihood opportunities, education and affordability.

Furthermore, recent studies conducted by Luna (2016), have described the vulnerability that Awajun women experience nowadays. This is due to the impacts of rapid changes undergoing in the region, a combination of, climate change, loss of rainforest, hunger, suicides and HIV outbreak, impacting among Awajun women. According to this research, HIV has increased from 35 cases in 2011 up to 227 in 2015, there is limited access to medicine and the affected population is too poor to go to bigger cities to get treatment. Luna (2016) states that climate change is also affecting access to food, increasing scarcity. Activities such as illegal mining, which process contaminates the river with mercury, also limits their access to water and sanitation, and increases health problems. Luna (2016) quotes the anthropologist Willie Guevara who recognises that the shift from the traditional activities to an extractive model is dis-empowering the hegemonic role formerly had by women in the Awajun nuclear family. From another perspective, during my previous research experience in the area, as part of the project “Transversal: Integration actions in the Peruvian territory”, we encountered that women had empowerment networks that help them to improve and commercialize their handicraft made products.

Because of the two situations explained in the previous paragraphs, this research project focuses on the impacts of the road on indigenous handicraft women, who, while being in a vulnerable position in the region, have a support network of community organisation.

There are several factors that affect SMN as a region (Condorcanqui), and while this thesis project will not delve directly into these issues, they are important to note. On one hand, SMN is in the area of influence of the “Binational Plan for the Development of the Frontier Region Report” among Ecuador and Peru (Forsyth & Inga Aguirre 2015). In contrast, SMN is also in the area of influence of the potential project for the Hydroelectric Dam of the Pongo de Manseriche, recognised in the final report for the “Elaboration of executive summaries and technic studies for the hydroelectric dams with exportation potential to Brazil” (Q&V Engineers 2007, p. 6). If this second project were to be constructed, the inundation area will be over SMN and the majority of the land area inhabited by the Awajun and Wampis people. It is also important to note that this project has been in the pool of projects since 1940 and has not been funded. My research project does not consider the impacts of any of the two plans mentioned above, and studies the impacts of the road construction in the context of when the interviews were conducted.

The next section presents the research design of the methodology implemented.

THE RESEARCH METHOD:

a) RESEARCH QUESTION

As previously explained, the aim of the research question is to delve into the impacts of the road construction, in the capabilities of a vulnerable population, such as indigenous women who work on handicrafts. Therefore, this research aims to inform with a wider knowledge of how this interventions impact in the population. The final objective is to inform the creation of more inclusive urban policies in Peru, with an emphasis of the jungle urbanisation.

The research question is: **How does the construction of the road in SMN affect the capabilities of the indigenous craft women in order to define their livelihoods, education opportunity (and their family) and food affordability, freely?**

b) OPERATIONALISATION

The design of the research focused on answering the question from a qualitative perspective. The following lines describe the method, involved population, sampling, scope and limitations.

The proposed method is a case study, as Yin (1984, p.13) describes *"Case studies are the preferred strategy when "how" or "Why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context."*

The research project *"traces the sequence of interpersonal events over time, describes a subculture that had rarely been the topic of previous study, and discovers key phenomena"* (Yin 1984, p.15), thus it meets Yin's definition of a descriptive case study. In order to understand this sequence of events, I present two timetables, the first one shows the process of the road construction, and the different changes drawn from previous research and interviewees' testimonials. The second one, shows a timeline of the organisation of the interviewees' handicraft women networks which is explained in the results chapter (See **Timeline 1** and **Timeline 2** on page 25).

c) INVOLVED POPULATION

The literature review has analysed the social and economic vulnerability of the Awajun and Wampis women population as well as the impacts of road constructions in remote communities and how the capabilities approach is relevant for the case study. The objective of this research is to analyse the effects of the construction of the road in their livelihood, education opportunity and food affordability. By focusing on this population, this research project aims to understand the effects of the road construction in the target population. As stated at the end of the literature review, the condition of the chosen population does not only present a genre focus, but also allows to acknowledge the voices of the less heard in planning processes. Focusing in this population also allows to gather complementary information, of the effects of the road in children and their families' lives.

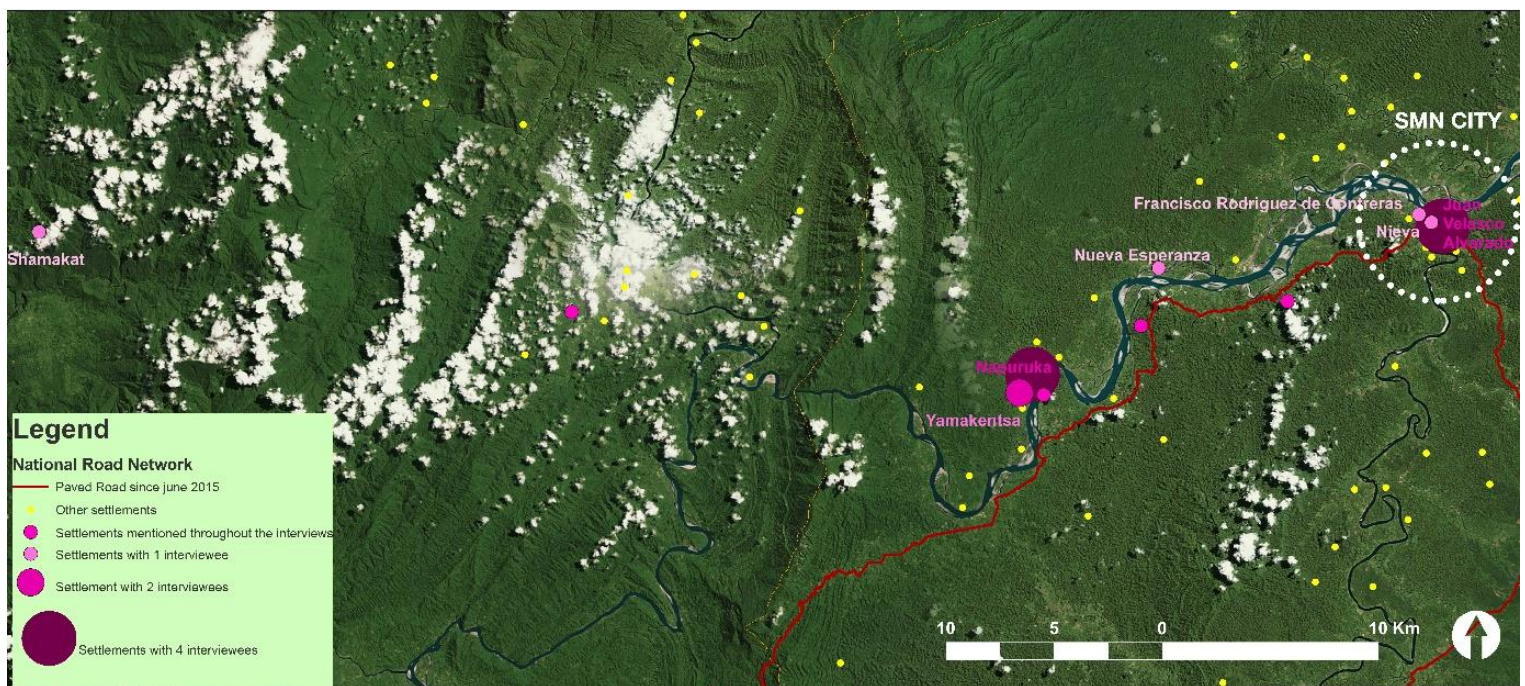
d) SAMPLING AND SCOPE

The total sampling of people interviewed in this research is 14 women, who belong to the indigenous craft women networks. Thirteen of them are part of a network, while one is related, but not permanently part of them. They come from different settlements, but have constant interaction with SMN. The list of interviewees with the dates of when they were interviewed as well as their settlement of origin and the relation with a handicraft women network can be seen in the table below. [Figure 3](#) on page 22, shows the location of the settlements and its distance from SMN.

| Name | Date of interview | Settlement of origin | Network they belong to | Membership time |
|------------------|-------------------|----------------------|------------------------|-----------------|
| 1. Interviewee 1 | 10 February | Contreras | Yapit | 4 years |
| 2. Interviewee 2 | 10 February | Napuruka | Yapit | Does not say |
| 3. Interviewee 3 | 10 February | Juan Velasco A | Yapit | 4 years |
| 4. Interviewee 4 | 11 February | Shamatak (Cenepa) | Napuruka | 5 year |
| 5. Interviewee 5 | 11 February | Napuruka | Napuruka | 4 years |
| 6. Interviewee 6 | 11 February | Yamakentsa (Cenepa) | Yamakentsa | 4 years |

| | | | | |
|--------------------|-------------|----------------------|--|---|
| 7. Interviewee 7 | 11 February | Napuruka | Napuruka | 5 years |
| 8. Interviewee 8 | 11 February | Napuruka | Yapit | Does not say |
| 9. Interviewee 9 | 11 February | Nueva Esperanza | Yapit | 1 year |
| 10. Interviewee 10 | 11 February | Yamakentsa (Cenepa) | Yamakentsa since 2012 and Yapit since 2013 | 1 year in Yamakentsa + 4 years in Yapit |
| 11. Interviewee 11 | 11 February | Juan Velasco A | Yapit | 4 years |
| 12. Interviewee 12 | 11 February | Juan Velasco A | Sekut since 2008 Yapit since 2013 | 5+4 years |
| 13. Interviewee 13 | 12 February | Juan Velasco A | Yapit | 10 years |
| 14. Interviewee 14 | 12 February | Santa María de Nieva | - | - |

Figure 3: Pena R.M. (2017) Interviewee's settlement of origin. Unpublished



e) LIMITATIONS

While the research focuses on the impacts of the road construction in their capabilities to choose their livelihood, education opportunities and food affordability, it does not delve in all the complexities of the land uses in the region. It does not elaborate further on health issues, including the increasing number of HIV cases or suicides, nor climate change impacts, because it is out of the scope of the method and will require the application of different strategies and expertise of analysis, with which the author does not count. The interest of this research is to guide infrastructure policies that enhance a *just diversity* (Fincher and Iveson 2008) focusing on the inclusion of indigenous women in the *city* of SMN.

Furthermore, the analysis focuses on the indigenous handicraft women that are part of the “Yapit” organisation and its networks. There is no analysis of other existing networks, which opens pathways for future research. For matters of word counting, the results of the interviews have been translated by the author and are presented in the result section. While these translations are reliable because the author is a Spanish native speaker and speaks English fluently, there might be some details lost in translation from Awajun-Spanish-English. Another limitation is that while the questions were formulated from a capabilities perspective, the answers were not articulated in the same terms. An analysis of their ‘well-being freedom’ is based on crossing information among their responses based on the author’s interpretation.

Finally, it is out of the scope of this research to develop comparative studies of the impacts of road construction in other segments of indigenous population, such as men, or other segments of non-indigenous population living in SMN. This opens research opportunities to analyse the impacts of road construction in other segments of the population and compare them to the results of this thesis.

f) COLLECTION OF THE DATA

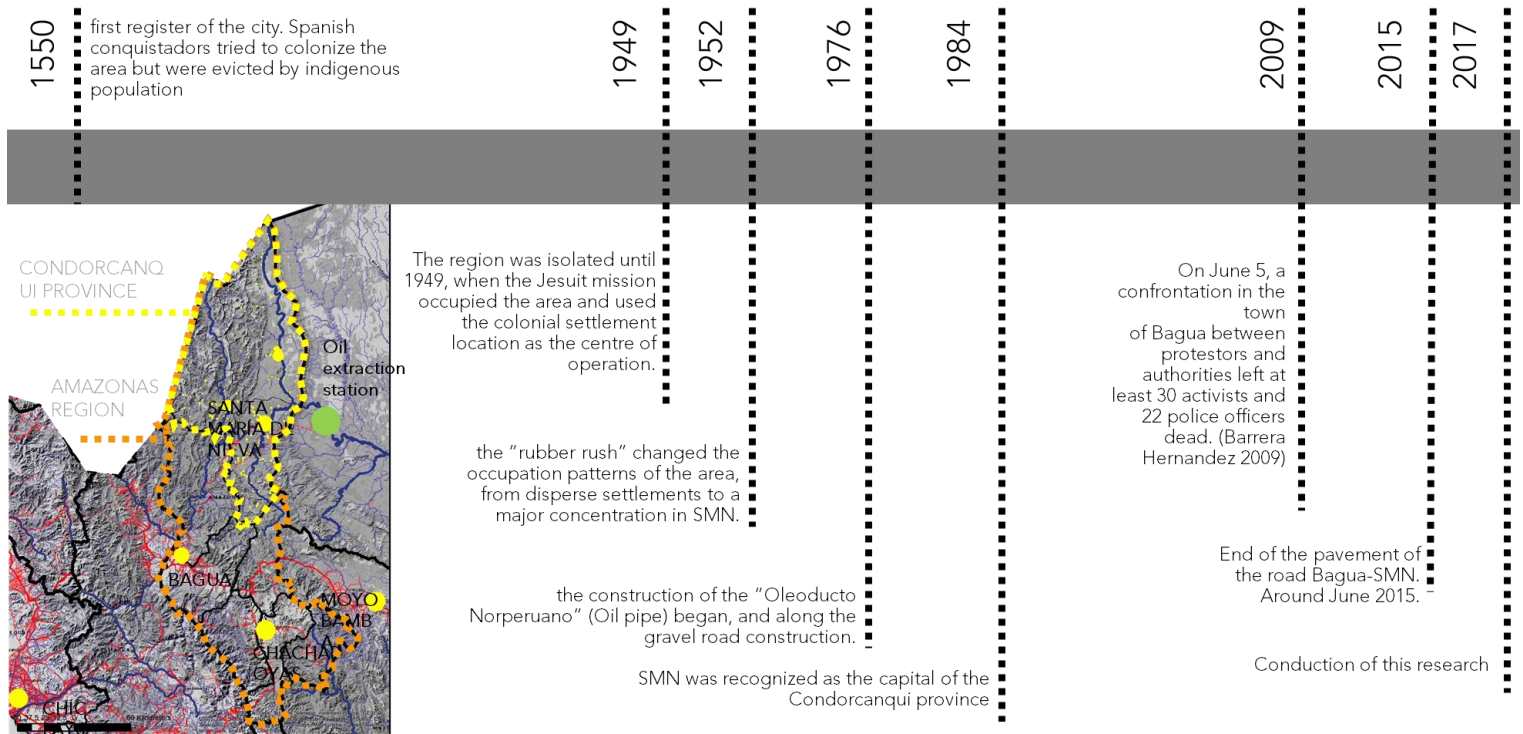
Research was conducted in Santa María de Nieva (SMN), Amazonas, Peru. Due to time and logistics constraints, the author was unable to travel to conduct the interviews. However, the person in charge of gathering the data was an experienced researcher also familiar with the area of SMN. Dr. Luzmila Mendivil is a lecturer in Education at the Pontificia Universidad Católica del Perú (PUCP), with more than 20 years of experience in research with vulnerable populations (Women and children). Furthermore, she is the director of the Department of Education research centre “Centro de Investigación de Servicios Educativos” (CISE-PUCP).

Previous to Dr. Mendívil's trip to SMN, the author coordinated with Luzmila Bermeo⁵, president of the handicraft women network Yapit, who contacted the researcher with the interviewees. Dr. Mendívil conducted seven individual interviews four of them in Spanish and three in Awajun, in which Luzmila Bermeo acted as interpreter. These translations are reliable because Mrs Bermeo's native language is Awajun, and she speaks Spanish fluently. The other seven individual in-depth interviews were done in a group setting, individually asking the questionnaire to each of the interviewees. It is important to highlight that due to the context explained in the "Setting" section, there are historical factors which contribute to reluctance and a lack of confidence for women to speak about their current situation and they preferred to be interviewed in a group setting to support each other and have witnesses of their responses.

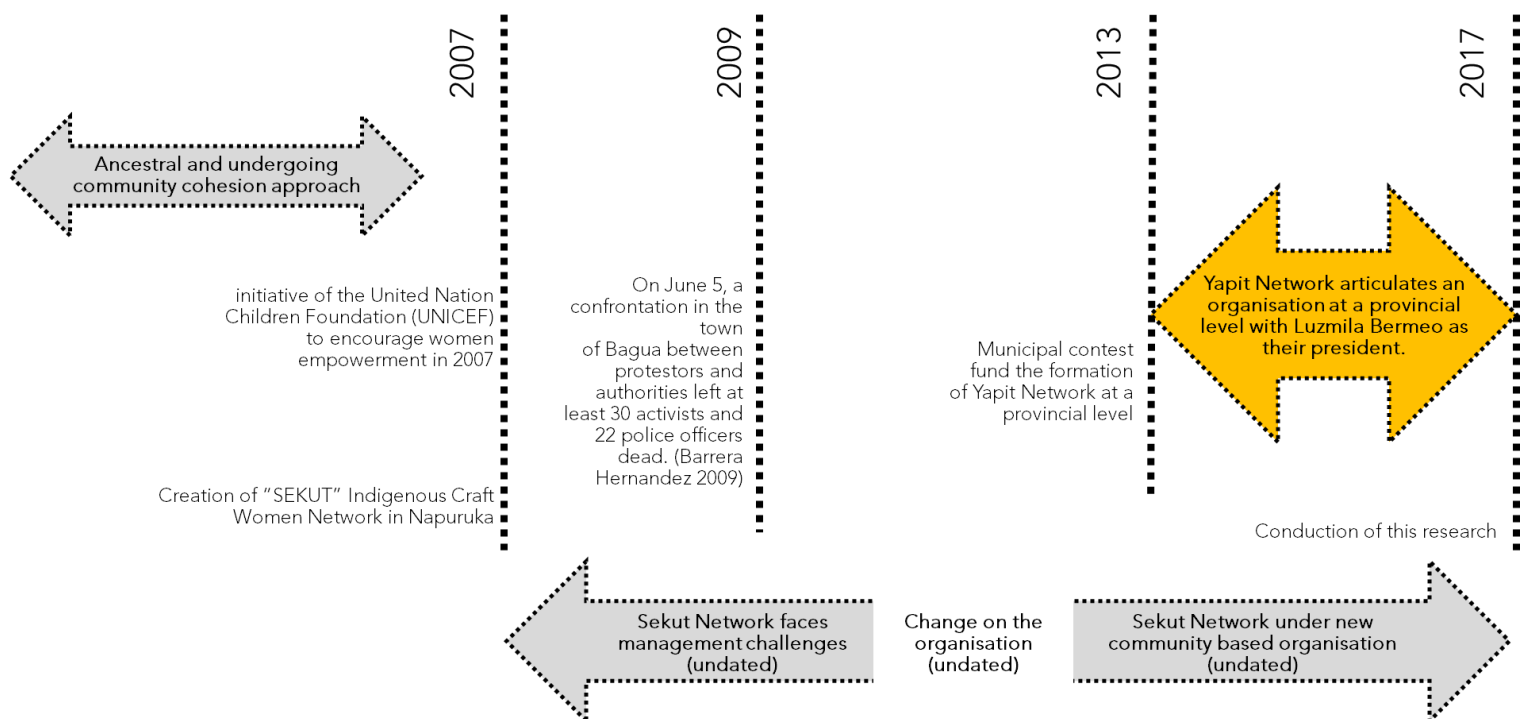
g) DATA ANALYSIS

Is categorized in the three major topics proposed in the research question: firstly, impacts on livelihood, focusing on the commercialization of their products, secondly, impacts on education, focusing on to what extent they are free to choose their education and their children's education, thirdly, impacts of the road on their food affordability. These results are intertwined and open research fields to explore, such as the impacts of the road construction on migration, change of mobility patterns, perceptions of safety, and future expectations.

⁵ This research would not have been possible without the support of Luzmila Bermeo, a local indigenous representative who was recently recognised by the Peruvian Minister of Culture as "Personalidad Meritoria de la Cultura" (Meritorial Cultural Personality) in honour of her contribution to the conservation of the traditional techniques and ancestral knowledge related to the ceramic development of the Awajun people.



Timeline 1: Pena R.M. (2017) *Sequence of events in SMN since the foundation of the city until now.* Unpublished



Timeline 2: Pena R.M. (2017) *Formation of the analysed indigenous women network.* Unpublished

The graphics above present two key timelines to understand the sequence of events in the region and the organisational network.

CHAPTER 4: RESULTS⁶

IMPACTS ON LIVELIHOOD OPPORTUNITIES

IMPACTS ON EDUCATION OPPORTUNITIES

IMPACTS ON AFFORDABILITY

REFLECTION ON RESULTS

⁶ Word count: 3135

This research project analyses the impacts of a road construction in the remote city of SMN, focusing on three aspects: livelihood opportunities, access to education, and food affordability in a particularly vulnerable segment of the population. This segment is represented by indigenous women who work in handicrafts and while being vulnerable, have developed social and commercial support organisation networks that surpass the geographical limits of the city (see [Figure 3](#) on page 22 on the methodology section).

This segment of the population is relevant because it is a way to understand their needs and encourage further and equitable distribution of the benefits of infrastructure in remote communities towards implementing policies that ensure a *just diversity* (Fincher and Iveson 2008) in the *city*. In the Peruvian context, being women and indigenous, represents a limitation for which their voices are less heard. Despite that, this population is in constant search for economic opportunities to improve their daily income and help their children to access to opportunities they did not have.

There are a number of results from the interviews which were unexpected. Firstly, the majority of the interviewees, 11 out of 14, had a different income rather than handicraft production, because they referred that they could not afford themselves and their families with that unique income. Seven out of those, work on the agriculture field, growing bananas, cassava, corn, cacao, among other local products to sell to local traders who commercialise their products in the Western province of Bagua (see [Figure 1](#) and [Figure 2](#) on page 9). Two interviewees' incomes are based on school teacher's retirement pensions which they also complement with commercial activity or renting properties. Finally, one currently works for the public sector. A second unexpected result, was the availability of tracking the history of the origins of the handicraft women networks by relating the different testimonies of the interviewees. This second finding will be developed in the following paragraph and is represented on [Timeline 2](#) on page 25.

While culturally, there is an ancestral and undergoing community approach, according to the testimony of the interviewees, the formalisation of the organisation of the indigenous handicraft women network, started as part of an initiative of the United Nation Children Foundation (UNICEF) to encourage women empowerment in 2007. They sought for local help to look for possible options to reinforce their economic capabilities. In this context, handicrafts seemed like a great opportunity to enhance their cultural traditions while improving their economic capabilities. From this first initiative, they organised the association: Sekut. As organisation, they went through several challenges to keep the institution running,

especially focusing on: administration and accounting challenges, how to connect to new markets, and accomplish market's expectations. It helped to promote their culture, and through time, work against the stigma of "uncivilized" people which was posed after the "Baguazo conflict" in 2009, and has been part of the character of the colonisation foundation of the city. Later, the challenge was related with how to manage the direction board and respond to "SUNAT", Peru's national taxation institution. After facing all this challenges, they needed to close the original organisation of Sekut, but it remained under a new organisation, in a community level which now has access to different markets through their alliances with NGOs. In 2013, the municipality organised an invitation between different communities in the province, and funded a new handicraft women network project: Yapit, which articulates members at a provincial level. Nowadays, this group faces the challenge of finding access to new and permanent markets and improving their production process. There are other networks such as Napuruka and Yamakentsa, which work at a community level, but are also part of the Yapit network.

The following paragraphs present the results from the three logics of the research question. The Chapter concludes with a reflection of the unexpected findings and the inter-relations with the expected findings. As stated in the methodology section, thinking on an English speaker reader, the responses have been translated from Spanish to English, and due to limits in the word count, I will only present the English version.

a) IMPACTS ON LIVELIHOOD OPPORTUNITIES

As a result of the analysis of the impacts of the road construction on livelihoods opportunities, the topic most recurrent was referred to the impacts on the commercialisation of their products. 13 out of the 14 interviewees referred to it, recognising that after the construction of the road, they have more opportunities for sale and more access to new markets. At the same time, this has helped them to generate surplus to invest in education opportunities for their children. Prior to the construction of the road, interviewees refers:

2 or 3 years ago, I'm not up to date. There has been a change eh... how do you say? The road... it has improved a lot the bumping of people during travel... the product that they sold, bananas, arrived ripe, we couldn't sell them because they got stuck halfway... they got wasted, but since the change, a few years ago, they transport (and sell) more than twice a month... (Interviewee 3, February 2017)

In terms of the possibility to invest in their children's education, an interviewee says:

There is a change with the road, now, there are facilities to walk and transport. Selling the products. The students' city. Now, there are cars. And the possibility of selling their products, which they never had, they never sold. It is easier for the students. That way, they acquire money for education. It might not be a lot, but is something... (Interviewee 6, February 2017)

Others refer to a better possibility for sale, but also recognise that there are still limitations and things to improve:

She's grateful for the arrival of the road because that way she can sell her products because, the truth is... That without it, there was a lot of extreme poverty. Now what is missing, what is really missing is... to get... more... production hectares. Hectares for sowing. (Interviewee 5, February 2017)

While the formulation of the questions were designed to explore in the capabilities approach, the answers do not consciously recognise the freedom to make decisions on their livelihood opportunities. However, the connections about the responses of what they can and cannot do after the construction of the road and the inter-relations within the responses from different questions, allow to interpret their decision making process. From this interpretation, it seems that the impacts on the capability to make a decision to define the functioning of education and therefore, livelihood, are more related with the new opportunities acquired by the next generation (sons and daughters of the interviewees) due to a surplus on their income and new migration opportunities.

In terms of the capability to migrate, in relation to their education background and livelihood choice, the findings are the following: only three interviewees had tertiary education, and have consciously decided to stay and live in their communities. Among the other 11, 6 of them are helping their children to migrate for education, but stay in their city due to budget limitations and because their livelihood is intrinsically related with their place of origin. 2 of them have primary education and feel no desire of migration. One of the interviewees reflects on the importance of cultural recognition programs to influence her desire to stay:

Well, I personally, have never liked to go out of my... from the place where I was born, personally. When I was younger I wanted, I wanted to leave, when I finished high school and my tertiary education. I wanted to go to Chiclayo or live in Jaen. But, but then when I started to get training, seeing our reality of our ancestors and all, eh... the training on indigenous culture. I valued what it is, to be native. And the... that 'will' of leaving my land, vanished completely." (Interviewee 14, February 2017)

These findings suggest an inter-relation in the decision making process of the functionings of livelihood and education. While the impacts of the road are related to access to new markets opportunities and therefore a higher income, they reflect that those that benefit more are the sons and daughters of the working generation, who acquire new education opportunities through migration. The limitations of this findings are that they do not provide information about the quality of the new education that they are able to access, or their freedom to decide their destination and education careers. A further analysis of the relation among the impacts of the road construction in livelihood and affordability is developed in "Section c" of this chapter.

b) IMPACTS ON EDUCATION OPPORTUNITIES

The impacts of the road construction in the access to education opportunities is less clear than the direct impacts on livelihood. Only one of the 14 interviewees refers that the education services have improved after the construction of the road. Another one mentions that there is better access to education materials, previously the materials didn't get to the area, or were very expensive, because they needed to be transported by car and upstream by boat. After the construction of the road, the access is easier, faster and is uniquely by one mode of transport. Access to primary and secondary education seems to be easily accomplished, however access to tertiary education is not possible and the only option to obtain it, is migrating. One of the interviewees mentions:

The students finish primary school in some places, and in others high school if it exists, then there's nothing else... no more education. They want to study, they can't, want to go beyond, and there is no opportunities... economically, life here is more expensive than in other places. That is the hardest of not having access to education. (Interviewee 3, February 2017)

Along the same line, another interviewee mentions:

The study... the tertiary study is bad, but to study and work in other cities, changing their culture, and changing people... it is easy. The problem (here) is how to continue technical studies. (Interviewee 2, February 2017)

Looking at the testimonies, the clearer finding of the impacts of the road in education is the facilitation to migration and its relation to access to new markets which give the families a surplus to help their kids to migrate for education. In this recognition to migration, social networks represent a key aspect on their capability to migrate. As per said in the following testimony:

If a family goes to a city, they open a trail. Then Arequipa, Piura, Tacna, the “paisanos” (people from the same region) are already opening (the trail) and they do not want to come back. (Interviewee 1, February 2017)

The impacts of the road in education opportunities are therefore related to the impacts of the road in livelihoods and migration. The findings show a limitation in assessing the impacts of the road in quality of education within the city, which opens pathways to new research opportunities.

c) IMPACTS ON AFFORDABILITY

Affordability presents the most challenging impacts for the interviewees. From the 14 interviewees, only one considered that the prices have dropped and there is more variability of products. The other 13, agreed on the fact that there is access to new products, however, they refer that the prices have rose and are difficult to afford with their income. One common occurrence among the interviewees is related to unfair trading settings. They consider that the prices of ‘foreign’ products (from other regions in the country, like the Coast and Highlands) are too expensive compared to the local products and claim that the ‘foreigners’ take advantage of them, setting prices that they consider unfair but with no capability (or decision power) to reject the transaction. An example of these testimonies is the following:

They have lots of facilities, but there is no money to move to another... town. Because the ticket is very expensive, they don't make it cheaper even though is a short trip. 45 minutes, 15... 20... When they bring their products to the market place, they charge double. They take advantage, the... the taxi drivers and the ones from the UTEs, they take advantage of our poverty. All that happens, she says. Well, we are happy that we have a road, but the people... this people... come here to make money. (Interviewee 5, February 2017)

In a similar line, the following testimony describes trade inequality:

Despite, despite that the road has arrived (been finished), the food is still very expensive... if we bring little money, we receive little money, we can't afford to eat with our family... what the traders do is... they drop the prices to buy our products... but they do not even, give us water. But when they go to our community, we say these people are coming from far away, let's give them something to eat. But they do not invite us anything, worst if water. (Interviewee 10, February 2017)

In terms of the food affordability and access to products, the testimonies inform that there has been a shift in the type of products that they access. The following testimony refers that:

Well, now we access to more fruits. Because before there were more tinned products, eh... things like rice, beans, that is what we found, right? But now, I see more vegetables, more fruits, right?. (Interviewee 12, February 2017)

The quality of the road has influenced in the affordability of the trip cost. The following testimony explains that when the road was unpaved, the cost to go from SMN to Bagua (approximately 120km) was twice as expensive to the cost after the pavement of the road:

Well, the impact has been the new... New access like the road. We were happy because we thought that it was going to be cheap. And our transport for travel and excursions with the family was going to be... eh... it was going to create joy. But it was awful when the price was 100 soles or 120.

Interviewer: 100!

Interviewee: uhum... and after the new road, she thinks... the last price was because they paved the road, they dropped.... They said it was going to be up to 30 soles, but they dropped it to 60... (Interviewee 3, February 2017)

This final price represents around US\$20 for a trip of 120km in 2 to 3 hours.

After analysing the testimonies, the impacts of the road in food affordability are therefore, also related with the livelihood opportunities. As noted in "Section a" of this chapter, while they have access to new markets, there is no corresponding growth in their choices opportunities that influence people's capacity to reject or accept the trade. This is one of the reasons why this thesis states that 'Infrastructure does not create capabilities', because the findings suggest that there is no instantaneous response in the development of capabilities and their 'well-being freedom' (Sen 1993).

d) REFLECTION OF RESULTS.

The findings show three unexpected topics were the road has impacted. Firstly, in mobility modes, 8 out of the 14 interviewees recognised that they used to walk a lot before, which was a burden if they needed to transport their products. Currently, they travel by car. The following testimony narrates this shift:

There is a change... before we walked, a long time, hours, but with the... with the change that has arrived... the cars, moto taxis, have facilitated to transport to other communities, bring products, come back by car, not walking anymore. (Interviewee 5, February 2017)

The second topic widely mentioned is the one related to their expectations. 6 out of the 14 interviewees refer to the physical improvement of the road as a future expectation, one of the testimonies acknowledges the limitations of the existing road:

The road is too narrow, like the sisters say here, right? (Religious representatives) It seems... seems an ant track... imagine how the ants cross, right? But among them, between... on top of each other sometimes, it seems an ant track. As a consequence, sometimes there are... eh... how do you say? Eh... accidents due to that, it is too narrow, what can I say?. We have spoken with the Governor, which was... supervising the works, let's say. We have spoken but his answer was: "You already have a road. That is it, ok?". Or something like that, but that is what upsets me and its implications on attending health emergencies (Interviewee 12, February 2017)

While it was only directly mentioned by one person, a few other interviewees expect that the *city* will develop as of other cities. This remarks that one unexpected result, considers that deforestation is part of the urbanisation process:

Yeah, in 10 years you might not find nature, like you see now. Because the population is increasing, it could be that instead of seeing green trees in front, you will only see houses, there won't be as much greenery as we see now. (Interviewee 14, February 2017)

This testimony raises questions about the desired future for the development of small cities, which, as acknowledged before, are an important piece among the urban and rural puzzle.

Finally, the topic that was repeatedly mentioned, is related to safety, 5 of them refer to the increment of crimes and robbery in the city after the implementation of the road. 3 of them refer to the infrastructure quality, and refer a number of accidents because it is too narrow and the maintenance has not been adequate. One interviewee states that since the implementation of the road in mid-2015, to the present, 3 bridges have fallen down and there are constant accidents happening in the road. The following testimonies illustrate these findings:

Now, the negative side is... the negative side of the presence of the road to my city, is that is bringing thieves... they arrive robbing in moto taxis. That is the negative part, and we are protesting. They come robbing, and also thugs have arrived... They commit crimes in Bagua and then they come here to hide. (Interviewee 14, February 2017)

This section has analysed the impacts of the road in three unexpected topics: Change on mobility modes, future expectations and impacts on safety. It is important to note that there is an inter-relation among these findings and the three logics identified on the research question. Changes in livelihood and access to new markets are related to the shift in mobility modes as well as access to education. Finally, in terms of future expectations, it is recurrent in the responses of the interviewee's to expect an improvement of the road infrastructure to avoid safety hazards and enhance better modes of mobility. The limitation of this section is that while this questions were asked with the intention to explore in their capabilities, it is less clear to identify their freedom in terms of mobility modes, future expectations and safety.

CHAPTER 5: DISCUSSION AND CONCLUSION⁷

⁷ Word count: 953

In order to answer to the research question: **How does the construction of the road in SMN affect the capabilities of the indigenous craft women in order to define their livelihoods, education opportunity (and their family) and food affordability, freely?**, the previous chapters have reviewed the previous literature on the impacts of road construction in remote communities, and the relevance on the capabilities approach in the case study. Then presented a summary of the methods applied throughout the research, and finally, the results, organised under the three logics of the research question: impacts on livelihood opportunities, impacts on education opportunities and impacts on affordability. The results also report unexpected findings and its relation with these logics.

Some of the findings answering this question link to previous research results. For instance, while being different realities, there are similarities among the challenges faced by the Penan Natives and the Awajun and Wampis people. As Selvadurai et al. (2013) suggest, there is a need to find ways to encourage economic upliftment without destroying their key cultural identity and the relation with their territory. While the creation of indigenous handicraft women networks are a path towards generating economic upliftment, the challenge they face accessing to fair trade conditions, represents a barrier. Another finding drawn from the testimonies, and common to previous research conducted by Khandker & Koolwal (2011), is that in the short-run, the road has impacted with higher per-capita expenditure and lower transport costs. While the long-run comparison is limited in this case due to the time when the road was finished (mid-2015). It seems that the impacts on affordability correspond to Khandker & Koolwal (2011) findings, both food and transport cost referred in the testimonies, suggest that 'the rise in demand sustains market prices levels'. The references to labour demand are not explored in this research. While originally, this research aimed to also analyse accommodation affordability, the findings did not show changes on land prices yet. This is a limitation that opens pathways to new research opportunities for long-run analysis.

From a capabilities perspective, it has previously been acknowledged that there is a limitation in the results due to language barriers and unfamiliarity of the interviewees with the term. The author's interpretation, based on the testimonies, is that from an equity and sustainability perspective, the 'well-being freedom' of the interviewees has not been substantially enhanced. Because, while their income capacity has increased due to access to new markets, they are not in the capacity to reject low price trades to pursue better market prices. This is intertwined with education opportunities, because they would not be able to afford their children's migration for education. It also links to their affordability opportunities, because making the decision of not to trade, will jeopardise their effort of production of handicraft

and agriculture, putting them in a detrimental position. This is another proof that “Infrastructure does not create capabilities”. These findings open pathways for research opportunities in the long-run, because based on the testimonies, it seems that the capability of making education and livelihood choices is enhanced on the second generation, the children of the interviewees.

From another perspective, the findings suggest that road development does not create instant access to quality of education, or better livelihoods opportunities, both being related with the socio-economic background of the household, as acknowledged by Khandker & Koolwal (2011). These findings also suggest new research opportunities for the long-run, to analyse the relation between infrastructure projects and access to good quality education.

Contrasting this research findings with Brown’s (1984) about the impacts of the construction of the marginal road in Awajun communities, it is surprising that thirty-three years later, there is very little change about the dependency on foreign goods and therefore, the autonomy of the communities after the presence of “civilization”. In this regards, while this research has not delved in this discussion, based on the author’s experience in the city of SMN, there is a strong local will to be incorporated in debates about their inclusion into the “modern society” and work towards developing models that respect their identity and well-being, as well as the environmental conditions of their territory. From my experience there is still a lot of room to explore into these models, especially in regards to challenges of service provision, such as sanitation, access to water and electricity, which were also reported by the interviewees.

In addition to the pathways for new research identified in the previous paragraphs, there are two limitations of this research that open new opportunities. One is related to the impacts of roads in other existing indigenous networks, with different features like market connections. Similarly, there is a possibility to generate comparative studies of the impacts of the road construction in SMN with other segments of the indigenous population, and non-indigenous population.

Finally, the statement “Infrastructure does not create capabilities” aims to reflect on the effects of policy decision making on vulnerable population, in this case represented by indigenous handicraft women. This reflection seeks to delve into the inequalities referred by Remy (2015) and Ross and Peschiera (2016), among rural and urban settings in Peru. While infrastructure is necessary to provide access to urban services to the rural communities (Remy 2015), it is important to note, that it should be accompanied of projects that enhance their capabilities. An alternative for this, is to generate programs to improve their production,

trading opportunities and access to new livelihood opportunities through access to good education. This programs should be government led, because as Marcuse (2012, p.144) recognises, the distribution of social justices is a government role. As the results indicate, leaving that decision to the 'market', can create greater inequality relations in detriment of the most vulnerable population.

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