Access to water in the 'Smart City' of Bangalore. For whom?

A study of the role of the lack of access to water on sustainable livelihoods in informal settlements in Bangalore

Richard Martinez

Radboud University

Master Thesis, Human Geography

Access to water in the 'Smart City' of Bangalore. For whom?

A study of the role of the lack of access to water on sustainable livelihoods in informal settlements in Bangalore

Richard Martinez

Student number: s1034574
Radboud University, Nijmegen
Nijmegen School of Management
Human Geography
Specialization in Globalization, Migration, and Development
4th of January, 2022
Thesis supervisor: Dr. Lothar Smith

The photos on the cover page

Top left: The Robert Bosch center for Cyber Physical systems (Back, 2019)

Middle right: Informal settlements in Bangalore (iijnmbangalore, 2015)

Bottom left: Picture of a faucet (Welle, 2019)

Preface

Spending the early years of my life in a state that borders Mexico, I was exposed from an early age to migrants relocating their life to the United States. Just before the start of my teenage years I volunteered in a relief program that supplied bare essentials, such as water, canned food, and clothes to migrants that where marching through the desert into the United States. I saw first-hand the urgency of basic essentials people needed for survival. At thirteen I relocated with my family to South Africa. At this point in my life my eyes were opened to the realities of internal migration in a developing country. For the first time I saw the dire living conditions of informal settlements, thus furthering my curiosity of livelihoods. At the end of my Bachelor's degree, I took the first chance I had to learn about refugee resettlement. During that time, I learned the value of access to social benefits for families that were starting from scratch. Basic essentials, like transportation, housing, money, food and water, were vital to their sustainable livelihoods. I have decided to write my thesis on the lack of access to water because it is an arising issue for many rural to urban migrants in a time when cities in the developing world are rapidly expanding.

First I would like to thank my professor and thesis supervisor, Dr. Lothar Smith. I want to thank him for his unique insights that provided me with the correct direction to write this paper, as well as his feedback throughout the development of this thesis. In additon I want to acknowledge my gratitude for the course 'Globalising cities and hinterlands' taught by Dr. Lothar Smith. This course provided the foundation of my knowledge to explain the interconnectedness between globalization and development in the global south. I also want to thank the Radboud community for providing me with the facilities and resources I needed to educate myself and produce a thesis I am passionate about.

I would like to take this time to express my gratefulness to my friends and family, who have been supportive throughout this study period. My family has been supportive by motivating me to write my thesis besides the limitations because of the current Covid restrictions. In addition, my friends, and classmates have supported me by sharing their knowledge about the subject and their experience in writig their thesis. I am grateful for everyone that has helped me accomplish my personal and academic goal.

Richard Martinez

January, 2022

Executive summary

Many cities across India have experienced exponential urban development giving them the popular titles as megacities. Bangalore, compared to other cities in India, plays an important role in the progress of India's tech industry and employment opportunity for millions of people in India and around the world. The city is not only a magnet for the highly-educated data scientist, but it is also home to rural populations that have migrated to Bangalore for better life opportunity. The city now hosts a variety of western businesses that outsource their business operations to Bangalore. Meanwhile, rural migrants take low-paying jobs in the informal market place that supports the formal economy in myriad ways.

As the city continues to build business centers, shopping malls, and transportation systems to cater to the incoming tech-savvy employee, rural migrants constantly find themselves fighting for their social and spatial rights to the city. Many sources provide insight into the events that jeopardize the livelihoods of poor populations, in Bangalore, and across the world. This thesis expands on the rights to water of rural migrants living in informal settlements amid events in Bangalore that risk their basic human rights. The particular aim of this research is to unmask the effects of socio-spatial injustice on one's ability to access water, and what impact this has on opportunities for achieving sustainable livelihoods. The provision of water is dependent on a person's rights and the distribution of water. A person's rights are dependent on how the laws of the state, that they are living in, perceive the role of water in a person's life. Throughout this paper we will see how water is considered a human right in the international arena, and a right to life on the national level for citizens of India. A means of distribution of water is commonly influenced by policy that dictates the infrastructure that ensures water is accessible. In the case when there is a lack of access to water its critical to investigate how the laws on a person's right to water is perceived and the policy that dictates a distribution of water. Because, when there is a lack of access to water the circumstances can be life threatening.

Bangalore was selected as the case study for this research because it's a prime example of a city that combines a history of rapid urban development with rising issues around access to basic necessities for all its residents. To research the lack of access to *water* through the lens of social-spatial injustice, different factors have been researched. On the side of social injustice, a multi-level policy analysis was conducted. Starting on policy at the international level, focusing on the United Nations, the analysis provides empirical work on water being acknowledged as a human right and the initiatives taken for its accessibility. On the national level evidence is provided that shows how water is perceived as a 'right to life' for Indian

citizens. This is done by highlighting three prominent legal cases that involve the rights to water for Indian citizens. Finally, on the local level, policy is investigated to bring attention to the fact that informal settlements that are non-notified, meaning they are not registered with the Karnataka Slum Development board, are not included in the provision to water in Bangalore. The act of this policy brings substantial justification for the overarching theme of exclusion causing an experience of social injustice.

Spatial injustice is explored in three different areas. First, the economic environment of Bangalore is explored by using data which supports variables such as education, common industry, and employment opportunity. The intention is to give a clear layout of Bangalore and its initiatives as a 'Smart City'. As the analysis focuses on a population of rural to urban migrants, the following section gives information on the reason for internal migration. Findings in this section reveal that many people move to Bangalore for a better life opportunity, such as increased wages, employment, and educational opportunities. The final section brings to light the lack of rights rural to urban migrants have in Bangalore when it comes to accessing to basic necessities. The section uses the Ejipura eviction as a case within the case of Bangalore to provide reasoning for why people particularly rural to urban migrants, are living in an informal settlement that is non-notified. The case of the Ejipura eviction is applied to the concept of geographic uneven development by observing three different factors which are central to its meaning. These are an unequal distribution of wealth, people and resources.

The analysis on sustainable livelihoods reports on the impact a lack of access to water has on the opportunity for a sustainable livelihood of people living in informal settlements that are non-notified. The section unfolds into three different areas. The first section focuses on the shock many people face when experiencing a lack of access to water. Of the many shocks that are possible to experience, a health shock is brought to light by exposing the experience of symptoms that are correlated with a lack of access to water, such as diarrhea, fever, and high blood pressure. The second section looks at capital as a variable that plays a role into a person's ability to access water. Findings in this section support how a lack of physical capital leaves many people walking long lengths to access water, thus limiting their ability and access to water. In addition, space is given to analyze the social capital available to access water. Revealing how social capital too can limit the ability to access water by means of cost and dependency. Finally, the section concludes by questioning a reduced vulnerability for Ejipura evictees that are experiencing a lack of access to water. Applying the concept of 'time poverty' data in the analysis shows that the decision-making process of Ejipura evictees puts other important resources such as health services behind the prioritization of access to water. Thus,

the opportunity for a sustainable livelihood is jeopardized because water is prioritized over health services that are essential to living a sustainable life.

A conclusion of the thesis puts forth that the dimensions of socio-spatial injustice effect a person's experience to a lack of access to water, and thereafter impact the opportunity for a sustainable livelihood of residents living in informal settlements that are non-notified. That is because policy on the provision of water in Bangalore fails to include Indian citizens to access water solely because of their household status is set to being non-notified. The policy fails to extend its services to allow access to water for people living in non-notified informal settlements. Spatial injustice is then concluded by advancing that there is an unequal distribution of people, resources, and wealth. An unequal distribution of each of these variables has caused many rural to urban migrants, mostly Dalits, to lose their home and thus live-in informal settlements that are non-notified. Finally, it is concluded that the opportunity for the sustainable livelihood of residents living in informal settlements, particularly the Ejipura evictees, do not have a fair opportunity to have a sustainable livelihood. If they did have a fair opportunity to a sustainable livelihood then they would have the opportunity to health services that would enable them to be sustainable when experiencing a health shock. The inability to access health services is because the priority to access water overrides the priority to access other essential resources, like health care services. This thesis ends by recommending that further research should focus on the laws which justify a person's right to access water, as well as the policy that impacts the provision of water. Both policy on the provision of water and a person's rights can then be used to understand the opportunity for a sustainable livelihood of people that are experiencing a lack of access to water.

TABLE OF CONTENTS

Figures, tables, maps, pictures, and abbreviations

Figures

Tables

Maps

Pictures

Abbreviations

BBMP: Bruhat Bengaluru Mahanagara Palike

BJP: Bharatiya Janata Party (Indian Peoples Party)

HPCB: Haryana Pollution Control Board

INR: Indian Rupee

KDSB: Karnataka Slum Development Board

KKNNSS: Karnataka Kolegeri Nivasigala Samyuktha Sanghatan (a state federation of slum-dwellers)

MDG: Millennium Development Goals

NWP: National Water Policy

NWRC: National Water Resources Council

Pvt Ltd: Private limited company

SCM: Smart Cities Mission

SDG: Sustainable Development Goals

STEM: science, technology, engineering, and mathematics

UN: United Nations

UNECE: United Nations Economic Commission for Europe

USAID: United States Agency for International Development

WASH: Water Sanitation and Hygiene

WHO: World Health Organization

1. Introduction to a lack of access to water and social immobility in Karnataka, India

1.1 An experience of a lack of access to water

For many people it's the norm to have access to water. When the COVID-19 pandemic swept the world water played a pivotal purpose for our hygiene in defense of becoming ill. Without the availability of safe/clean water many people, more than those that already did, would have lost their family members. The loss of a family member can drastically change the decision a family makes. Short-term decisions, like gathering water, takes priority over decisions that impact long term goals, like education. This short preview captures the cause and effects with or *without* the COVID-19 pandemic, when not having access to water. Months before the first COVID-19 case the World Health Organization (WHO) published an article stating that 1 in 3 people do not have access to safe drinking water (Osseiran, 2019).

> Samrun is someone who knows what it's like to experience a lack of access to water. As a mother of two her day begins at 4:00 am to walk to the nearest public water tap regardless of the weather conditions. At arrival Samrun usually meets a line of people that are also waiting for their daily share of water. "I used to feel lucky if I reached home by early afternoon. But whatever lengths we had to go to get water, we did it. There was no other way" (Samrun, 2021). The process of gathering water, whether it takes half a day or an hour, can have an indirect and direct impact. The time Samrun has in a day is jeopardized because of the amount of time it takes her to gather clean water. The time used to gather water can be used towards achieving a long-term goal, like an education.

The reason for mentioning the array of problems Samrun endures is to show in a snippet how quickly a person's life can be affected when not having access to a very simple but necessary resource, like water. The portrait of Samrun depicts the context of a rural location, however a lack of access to water is also something recurring in the urban context. I will begin the thesis by explaining the region and the history of a group of people that found themselves living in an urban context without access to water.

1.2 Barriers to social mobility in the Mysore kingdom of Karnataka, India

Samrun's hardship does not only begin with experiencing a lack of access to water. Stories like hers offer a narrative of difficulties that make it problematic to access to water. A narrative of the 'Dalits', the lowest caste in the Mysore kingdom of Karnataka, is a story of social

immobility that trails to the lack of access to water. There are two Dalit castes, the Holeyas and Madigas; both with an occupation of removing the carcasses of dead cattle, deeming them as an 'untouchable'. They also had other occupations; however, this particular occupation was attached to their reputation. "[W]hile the Holeya merely remove the dead cattle, the Madiga also skinned and fashioned articles of clothes out of the dead cattle's skin (Chandrasekaran, 1992). This pre-occupation with leather renders the Madiga lower in the ritual scale than the Holeya and places them at the very bottom of the local caste hierarchy" (Chandrasekaran, 1992, p.122). As the Madiga are part of the Dalit caste the terms will be used interchangeably.

The Gandhian social reform movement led to many Dalit leaders uplifting the Madigas by helping to improve their self-esteem and to develop new identities. Similar to many circumstances in life the Madigas had to adapt to survive. For the Madigas this meant that they would need to abandon their occupation, traditions, values, and identity. Many gave up the occupation of killing cattle, which left them with a little number of skills that they can offer for employment. In addition, they "[gave] up the custom of child marriage, … buffalo sacrifice, consumption of carrion [decaying flesh of dead animals], payments of bride price, and serving liquor at engagement ceremonies" (Chandrasekaran, 1992, p.123). The methods used by the leaders of the Madigas were immediate and with direct overnight contact.

> "The [methods] of the leadership was as follows. [Madiga leaders] would go to the Dalit hamlets with buckets and soap powder, catch hold of the Madiga, give them a bath and take them to the *bhajane mandiras* [religious singing ceremony] started for the occasion to recite Ram *bhajans!* If anyone was found preparing carrion for consumption, kerosene oil was poured over it to make it inedible. Local Madiga leaders were so enthused by the movement that they sometimes got carried away. Middle-school headmaster Ramaiah narrated … how he came home one day to find the door closed ... and his father furtively slaughtering a buffalo inside. He immediately reported the matter to the police, much to the discomfiture of his family".

Chandrasekaran, 1992. p.123

Even though there was an urgency to integrate Madigas into the status quo of many upper caste members, the outcome was not what Madiga leaders aspired to achieve. The motivation to lift the Madigas from an 'untouchable' status was a motive for both upper caste members and the leaders of the Madigas. For the upper caste members, it was essential to remove the notion of 'untouchability' from their society to progress in their initiatives of equality. Furthered, the Madiga leaders saw that helping the Madigas was an opportunity for them to Sanskritization. The process of Sanskritization meant that lower caste could adopt cultural

patterns of higher caste members to improve their own status quo within the caste hierarchical system (Srinivas, 2003). Therefore, the motive was for upper caste members and Madiga leader's personal fulfillment. It soon became evident that this approach of changing the customs of Madiga's was not the correct means to upward social mobility, which was recognized by Madiga leaders. The new approach focused on improving the education and the occupations of Madiga's. This meant a shift from a *collective approach* of social mobility to an *individual effort* of improving one's own social mobility.

By the early twentieth century British education was implemented in Mysore, by opening a number of different schools. Madiga's learned general education and industrial training skills like leather stitching, carpentry, tailoring, and gardening (Chandrasekaran, 1992). The spread of education in Mysore was an opportunity for Madiga's to individually improve their social mobility. A closer look at a 1911 and 1922 census report on the occupation of Madiga's shows that many did not receive a high level of education. "Under the category of "Lawyers, Doctors, and Teachers', the census report['s] that there were 18 Madiga (13 males and five females) in 1911 and 88 Madiga (86 males and two females) in 1922 … My research confirms that [during this period] there were no Madiga doctors and lawyers at that time. What the figures probably stand for are 'primary school teachers. This job did not call for a matriculated standard of education [therefore a] middle school [education] ... was enough" (Chandrasekaran, 1992, p. 127).

An alternative route for the Madiga's to improve their social mobility was through diverse occupational opportunities. At the time the occupational opportunities available in Mysore were within sectors such as food and drinks, textiles, and transportation (Chandrasekaran, 1992). A study on social mobility among the Madigas of Karnataka provides insight into occupations in the region revealing that Madigas did not hold many occupations available in Mysore which could bring further opportunity to their social mobility. "Out of a total Madiga working population (actual workers) of 90,624 in the Mysore state, 7,170 Madiga or 8 percent were engaged in leather-work as their 'principal occupation' … the largest number of Madigas subsisted [in] agricultural labor. The 1911 Census notes that there were 18,280 'field laborer's, woodcutters etc.', and another 28,604 were in the category of 'laborer's, unspecified'" (Chandrasekaran, 1992, p. 126). Most importantly from this study is that a majority (28,604) of Madigas fall under the category of 'laborer's, unspecified', an occupation that does not require an education. Both education and occupation are resources that are critical to the Madiga's social mobility. Since the occupation of a laborer does not require a lot of skills, they are not respected like an occupation such as a doctor or a lawyer. An occupation as a means to opportunity is supported in the 'status-attainment model' of the American Occupational Structure (Balu et al, 1967). Blau

et al reveals that opportunity is a result of an individual's status-attainment, like an education. Furthermore, occupations that require physical labor and little know-how is slowly decreasing within an industrial society. "The occupational structure itself has changed with the development of industrial society (for example, there has been a decline in the number of manual jobs and a corresponding rise in the number of white-collar jobs)" (Turner et al, 2006, p.577). In an area where white-collar jobs are key to the ability of a person's social mobility, agricultural production and leather making, an occupation by way of many Madigas is not an occupation that will improve their social mobility.

I will now offer a recap of the social immobility that the Madigas experienced, their reason to move to an Bangalore, and the Ejipura eviction as evidence of the difficulties migrants face when living in Bangalore. From the outset many Dalits began at a disadvantage largely because of their exposure to the conditions of the caste system. An independent approach to upward social mobility limited Dalits to receiving an education or an occupation that can improve their social mobility. Rural populations that lack income and skills, like that of the Madigas tend to migrate to megacities like Bangalore (Black et al, 2011). The decision rest on the hopes for a greater opportunity such as being able to learn a new skill, diversify their income, or improve their occupational status. Their decision is thus put into actions based on the thresholds available to them, such as social networks they can depend on. Security for a sustainable life, is however not guaranteed once they arrive in Bangalore. Fast-forward to the near end of the 20th century, and the Ejipura eviction emphasizes the difficulties that many Dalits' faces. Ejipura is an 'Economic Weak Zone' (EWZ) which housed many migrants, mostly Dalits, that where living on the outskirts of Bangalore. Unfortunately, Ejipura was bulldozed to build a shopping mall, leaving the Ejipura residents to live in informal settlements. Quick self-made construction of informal settlements often leads to the population lacking proper legal representation to access water. In turn people living in informal settlements are left to depend on public taps, private enterprises, non-governmental organizations, borewells, tube wells, dug wells, surface water, and various social networks for access to water. These alternative options are not reliable and can have an impact on the livelihood of a person that is living in an informal settlement in Bangalore.

1.3 Problem statement

In a perfect world, if there is a need for a person to migrate internally within their country from a rural to an urban context, in search for a better life, they should be able to reap the same benefits that all citizens of the country have the capability of enjoying. In the case of this thesis

many of the rural migrants that have moved to Bangalore, and are living in non-notified informal settlements, are the previously mentioned Dalits. The problem is that residents of non-notified informal settlements in Bangalore are not included in the legal rights to the provision of water. Meanwhile living a rapidly urbanizing city can put people, like the Dalits at risk of falling into a non-notified status. Living under this type of status is a barrier to access water in Bangalore. This problem matters because the absence of water prevents a person from having the opportunity to live a sustainable life. The inability of a sustainable life can have a financial impact on the person because of the cost they incur when experiencing any form of shock, that can be a personal health issue or an external environmental issue to their life. Specifically, the lack of access to water plays a key role in influencing an experience to a shock, such as health issues which can prevent them from continuing their daily activities. This claim is supported with a qualitative analysis which provides data to support how specific populations are put into circumstances where they cannot access water. Thus, a person's rights to the city are an opportunity for them to live a sustainable life by means of the access to water.

1.4 Research objective

The research objective of this thesis is to try and better understand the role of accessibility to water for non-notified informal settlement and the impact on sustainable livelihoods in Bangalore, Karnataka, India through the application of a socio-spatial (in)justice theoretical approach. To meet this objective the thesis will provide an explanation of social and spatial proponents impacting the accessibility to water in Bangalore, and the effects on sustainable livelihoods. The social sphere will assess parameters of policy that influence the distribution of water for people that are living in non-notified informal settlements. The spatial sphere will explore the dimensions of an urbanized environment which influences the accessibility of water. The burden of a lack of access to water puts an unnecessary stress on a person when it comes to deciding which resources to access daily. That is because access to water becomes a priority over other basic human needs. Also, people are limited from improving their own livelihood because the shocks that they experience, caused by a lack of access to water, limit them from participating in their daily activities. To research this phenomenon the main research question of this thesis will ask – *What are the effects of socio-spatial injustice on the accessibility of water and how does it impact the livelihoods of non-notified informal settlements in Bangalore?* To answer this question a case study of the city of Bangalore will be used to analyze the effects of socio-spatial injustice on the accessibility to water. Along with this case study the Ejipura eviction will be used as a sub-case to highlight the experience of the Dalits that are living among a sprawling city of massive commercial projects.

1.5 Research questions

The main research question of this study asks: *What are the effects of socio-spatial injustice on the accessibility of water and how does it impact the livelihoods of non-notified informal settlements in Bangalore?*

Presented below are the following sub-questions to answer the main research question.

1. **Social injustice: Exclusion via policy**

   - What does policy from the United Nations and the constitution of India establish about accessibility to water? How does this compare to policy that dictates the access to the distribution of water in Bangalore?

     To begin the investigation of inclusion and/or exclusion of access to water via policy, I begin with forming sub-questions at the international level. I first ask *what is the position and initiative of the United Nations on the rights to water and what are water rights activists, international development practitioners, academics, and experts saying about the importance of access to water?* As my research is focused on India, I want to narrow my exploration of the phenomenon of access to water by posing at question towards the National Water Policy in India. I then ask *what is India's National Water Policy and what legal cases prove that there is a legal protection for the right to water?* In this thesis I am primarily focused on populations that are living in informal settlements in Bangalore, therefore I continue my questioning to focus on water policy in Bangalore by asking – *What is Karnataka's state water policy and what is its application when facing the accessibility of water for non-notified informal settlements?*

2. **Spatial injustice: Geographic uneven-development**

   - What is the relationship between recently migrated populations in Bangalore and the physical environment that's produced an unequal distribution of wealth, people, and resources?

     In this part the analysis I focus on three areas that help to explain a level of spatial injustice in Bangalore. First, to grasp the difference in the working population of Bangalore I ask – *what are the demographic gaps of the occupational force in Bangalore.* Once there is an understanding of the working population in Bangalore I further the investigation of the reasons what led them to Bangalore. To begin this area of the research I set out to ask *what factors of the push-pull theory play a role into the migrants in Bangalore, and what threshold*

approaches can identify reasons for putting their decisions into action? Finally, I want to investigate the spatial factors what have led to a lack of access to water for non-notified informal settlements. Therefore, I seek to ask, *did the Ejipura eviction create a spatial environment of an unequal distribution of wealth, people, and resources that led the Dalit population to living in non-notified informal settlements without access to water?* In this part of my analysis I support, with secondary data, that Dalits where exposed to spatial injustice in Bangalore, which has played a role in their inaccessibility to water.

3. **The impact on sustainable livelihoods**

-   What is the impact of differential access to water on overall opportunities for sustainable livelihoods of Dalit residents in informal settlements of Bangalore?

   At this point of the analysis, I am assessing the impact of a lack of access to water on the livelihoods of non-notified informal settlements. I initiate my research my asking *what impact does policy in Bangalore have on Ejipura evictees accessing water?* This will allow my analysis to begin at the impact on a person's livelihood by establishing policy as a point of departure. Focusing on the livelihoods of Ejipura evictees, I then ask *what shocks are experienced in the context of vulnerability because of policy that is excluding accessibility to water for non-notified informal residents in Bangalore?* To gain a comprehensive understanding of other variables that play a role in the accessibility to water I ask - *how do livelihood assets, like physical and social capital impact Ejipura evictees ability to access water?* Finally in pursuit to the question of the impact on the opportunity for a sustainable livelihood I ask – *what livelihood strategy is undertaken after being evicted from Ejipura? Is there a reduced vulnerability when lacking access to basic services, like water and health service for Ejipura evictees?* With the data provided from this question I can therefore come to a conclusion of an impact on the opportunity for a sustainable livelihood of Ejipura evictees that are living in non-notified informal settlements without access to water.

1.6 Relevance

Societal relevance

   The focus of this thesis has a wider relevance then compared to the direct relevance a lack of access to water has on a person's sustainable livelihood. A lack of access to water expands its wider relevance to societal factors, such as the hazard it has on the public health. People which are living in informal settlements often have no choice but to alter their lives by

turning to unconventional methods to sustain their livelihood. A common reason for a person altering their life is because sewer systems sometimes lack running water (Desai R et al, 2015). In this case the unconventional method that is adopted is to defecate into natural water sources (Desai et al, 2015). Consequently, open-defecation contaminates natural water sources such as lakes and rivers. Jointly, people that do not have access to water in their household tend to bathe in the natural water sources which are contaminated with defecation. Direct contact with contaminated water increases the risk one has of contracting a water-borne illness. The United Nations (UN) has come together to ensure that there is a halt to the aforementioned public health issues that come from a lack of access to water. There are two societal proponents of the initiatives the UN has taken that are worth mentioning. The first proponent is acceptability. "Water should be of an acceptable color, odor, and taste for each personal or domestic use [...] All water facilities and services must be culturally appropriate and sensitive to gender, lifecycle and privacy requirements (UNDESA, 2015). Acceptable color, odor, and taste are three components that ensures water is safe and therefore ensuring the safety of the public health. The second proponent is physical accessibility. "Everyone has the right to a water and sanitation service that is physically accessible within, or in the immediate vicinity of the household, educational institution, workplace or health institution" (UNDESA, 2015). Like we witnessed in Samruns story, accessibility can prevent the time-consuming task of gathering water which can open the opportunity to access other social benefits like health services or education. The relevance of the wider societal issues, such as public health, is also applicable to international development practitioners, NGOs, and governing parties. The reason for this is because the interest of their goals is to improve the overall public health of the society they are working for or working with. More so, the availability of water is also relevant to public service actors because it ensures the improvement of sustainable livelihoods for the people they are serving.

Within the past year we have experienced, and still are experiencing a pandemic that has claimed the lives of many individuals around the world. On May 4th, 2021, the Washington Post published an article headlining that India's vaccine shortage could last for months (Cunningham, 2021). The current state of India is in dire need of help to prevent the rising deaths from Covid-19. Right now, India's hospitals are overpowered by more than 360,000 new infections within the previous seven days, surpassing more than 200,000 deaths in India (BBC, 2021). Water, oxygen, and social distancing are variables that play vital roles in the safety for many Indians. Without a vaccine people are relying on water for sanitization from Covid-19. People living in informal settlements that do not have access to water become vulnerable to contracting Covid-19. The lack of benefits such as vaccines provided by health care services

paralyzes any father, mother, daughter, and son from being able to improve their livelihood. Falling ill to Covid-19 can mean the loss of a family member or preventing a family member from being able to pursue their occupational or educational goals. As more people become ill, more family structures are impacted to the point where the opportunity to provide an income is nearly impossible because a lack of water increases the risk of contracting Covid-19.

Policy relevance

Alongside inadequate infrastructure, such as sewer systems that are absent of water, is the relevance of a lack of access to water in an economy. By the 1990's India's economic environment shifted from strong economic restrictions of their marketplace to increased liberalization of their market, thus focusing their attention to the production of capital (Page, 2020). In this type of an economy a strong emphasis is put on the laborer to produce capital. For this reason, I want to focus on the role of water as a mechanism of support for a laborer that is engaging in the production of capital. A chapter in the book titled Progress and Poverty by Henry George (1882) claims that the subsistence of laborers is other forms of capital (food, clothing, etc.) that is simultaneously produced to a laborer that produces personal or public capital. For example, "the subsistence of the laborers who built the Pyramids was drawn not from a previously hoarded stock, but from the constantly recurring crops of the Nile Valley; […] so it is that the subsistence of the laborers engaged in production which does not directly yield subsistence comes from the production of subsistence in which others are simultaneously engaged" (George, 1882, pg.47). In this example the crops on the Nile Valley are simultaneously produced which support the laborers that are producing the Pyramids. This concept applied to the relevance of water to the economy is that *water* is a form of support for the laborers of India to produce capital. What happens, then, if there is an absence of inclusion in capital, that is in the form of infrastructure or policy if you will, to access to water which supports Indian laborers? The laborers of India are unable to engage in the production of capital because they do not have access to vital form of support, water. The lack of water for a person also has more effects then just not being able to produce capital for public use. A lack of access to water is a barrier for a person to produce their own personal capital. A lack of access to water lowers the nutrients that are needed for a person to academically perform well. Poor academic performance prevents a person from achieving personal capital, in the form of education, which can be used to access increased wages or diverse forms of opportunity.

Scientific relevance

The *scientific relevance* of my study helps to understand the impact a lack of access to water has on the opportunity of a sustainable livelihood for people living in non-notified informal settlements. Part of my research focuses on the aspect of spatial injustice within Bangalore, as it's a city that is expanding its infrastructure but concurrently failing to include access to water for some of its residents. Much credit can, and should, be given to academics, think tanks, development practitioners, NGOs, and international organizations for their attention to the issue of a lack of access to water and the progress that has been made to improve the accessibility to water. The agendas of development practitioners and publications of academics commonly focus on the consequences of a lack of access to water, and the actions to ensure accessibility to water. The UN habitat's agenda is an example of commitment of actions to improve the livelihoods of people living in the developing world. Within the UN habitat agenda, there is a commitment to improve the accessibility to water, a key variable to ensuring a sustainable livelihood. A sustainable livelihood is when one has the ability to recover from a shock without depleting one's natural resources base (DFID, 2001). Therefore, water is a key resource that ensures a person is able to recover from a shock, such as a health shock. In a commitment improving the livelihoods of people in the developing world the UN habitat commits to "provid[ing] increased coverage of water supply and sanitation services to ensure that vulnerable and disadvantaged groups have access to adequate quantities of safe water and to hygienic sanitation" (UN Habitat, 2003). The actions of the agenda are necessary to improve the accessibility to basic services. However, there is a need to focus on the concept of spatial injustice because of the location of informal settlements being in Bangalore. The position of informal settlements is among a sprawling network of commercialized development projects aimed to improve Bangalores image as a 'Smart city'. The relationship between the development of Bangalore and the accessibility to water for its population is a gap in the research on the phenomenon of access to water that deserves to be clarified. Therefore, in this study I have analyzed the Ejipura eviction as a sub-case within Bangalore to highlight how its residents are put at risk of accessing water. There is a level of importance to focus on the lack of access to water in Bangalore from a spatial perspective. First, a spatial perspective brings attention to the consequences of rapid urbanization in the developing world. It will provide a fundamental caution for cities in the developing world that are aspiring to achieve a 'Smart city' image. Secondly, it uncovers the human rights of poor populations that are living in Bangalore. The thesis will reveal the absence in policy and help to question the capacity of international development practitioners that are seeking to achieve access to water for people in Bangalore.

Finally, the approach of this research helps to justify the opportunity for a sustainable livelihood when there is a lack of access to water.

1.7 Thesis structure

The structure of this thesis is divided into nine chapters. Until now the first chapter has consisted of content focused on social mobility of the Dalit's in Karnataka. The first chapter is concluded by addressing vital points of the thesis such as the problem statement, research objective and questions, and the relevance of my thesis. The second chapter begins by addressing the external forces that influence the decision to migrate, accompanied with the circumstances people are met with when arriving in Bangalore. The second chapter also explains the concepts of socio-spatial (in)justice theory. It writes about what is socially and spatially just and unjust, in addition with examples social and spatial (in)justice to support its claim.

The third chapter, the methodology, speaks about the qualitative methods that were used to analyze data gathered to support the claim of this thesis. The first method argues exclusion via a lack of inclusion in policy as a basis for a precursor to the notion of social injustice. The concept social injustice in my thesis stems from the Bufacchi (2012) who states that exclusion is when undertaken policy excludes people from receiving the distribution of benefits, in this case water. In my second method of analysis, I position myself my arguing the dimension of geographical uneven development as a foundation for the concept of spatial injustice. Application of geographical uneven development for my argumentation rest on, what Warf (2006) explains as, the relationship between people and the physical environment producing an unequal distribution of people, resources, and wealth. The third method of analysis I put forth by arguing a jeopardized opportunity to have a sustainable livelihood for people that are experiencing a lack of access to water. The bedrock for this argument originates from the United Kingdom's Department of International Development (DFID) which states that a livelihood is sustainable when it can cope with and recover from the stresses and shocks and maintain or enhance its capabilities and assets both now and in the future while not undermining the natural resources base (DFID, 2001). The rationale of the aforementioned concepts can be illustrated by triangulating the interconnectedness of their meanings. Social injustice, by means of exclusion via policy, is an environment that does not give one an opportunity to access the distribution of water. Reason for exposure to this environment is found within the supportive reasoning for migration – Lee's (1966) 'Push-pull' theory, and further with the three-dimensional threshold approach (Hillmann, 2017). Once one is living in an environment that is socially

unjust, it is also possible that the relationship between people and its physical environment can erupt into the experience of spatial injustice. Both concepts put together deepen then lack of access to basic human needs, such as water. A lack of a basic human needs are linked with the third concept of my thesis, that being a jeopardized opportunity for a sustainable livelihood. The constant circulation between these three concepts is a never-ending series of events that paralyzes a person from living a dignified life.

The fourth chapter brings to light the case of Bangalore as a study for this thesis. The section briefly speaks about demographics of Bangalore and the informal settlements that are located in India. The fifth chapter analyzes social injustice by means of exclusion via policy. The sixth chapter analyzes spatial injustice by way of geographic uneven development in Bangalore. The seventh chapter analyzes the sustainable livelihoods of non-notified informal residents in Bangalore. The eighth chapter of the thesis provides a discussion on the effects of socio-spatial injustice on the accessibility to water and the impact on non-notified informal settlements of Bangalore. The ninth chapter is a conclusion that offers a summary of the research, different derived questions, policy recommendations, and my final reflection on the thesis.

2. Fabrication of internal migration, informal settlements, the lack of access to water through the lens of socio-spatial injustice theory, and sustainable livelihoods.

In this chapter I will explore the theories and threshold approaches of internal migration. To explain the reason for a flow of internal migration I will apply the Push-pull theory, however we will go beyond by understanding what puts the decision into action by focusing on the threshold approach. Following I will offer a perspective on the realities of informal settlements, the difficulties that come along with living in an informal environment, as well as a lack of access to water in informal settlements. This chapter then lays out the socio-spatial (in)justice theory. Social justice is first brought to light with an example of access to water in western European countries. Social injustice is then explained by mapping out maldistribution, exclusion, and disempowerment, all of which are accompanied with relatable examples to a lack of access to water. Rotterdam, the Netherlands is then used as an example of spatial justice that is related to water in terms of environmental distress. Spatial injustice is voiced by presenting issues of access to water that engage with locational discrimination, political organization of space, geographic uneven development, and economic system. After socio-spatial injustice is mapped, I focus my attention on the sustainable livelihood's framework. This framework gives attention to different variables that impact sustainable livelihood, that being transforming processes and structures, a vulnerability context, livelihood assets, livelihood strategy, and the livelihood outcomes. The chapter is concluded with a conceptual model of the thesis. The model features internal migration, socio-spatial injustice theory, access to water, livelihood outcomes, and a sustainable livelihood.

2.1 Internal migration: Push-pull theory and beyond with the thresholds approach

What is one to do if they are constantly constrained from a lack of commodities to improve their livelihood? A common decision is to go somewhere that can offer a better opportunity to improve their own livelihood. The 'Push-pull' theory by Lee (1966) offers fundamental macro factors that influence a person's decision to migrate. If we use the context of the Dalit's as a model to exemplify the circumstances of why people in poverty decide to migrate then we can observe macro circumstances. The push factor can be seen in the context of macro influences, such as employment opportunity, the level of a person's income, and the type of environment that a person is living; rural or urban. For example, the Madiga's had an occupation of removing the carcasses of dead animals which was a type of employment that

was considered a ritual polluted activity. This type of employment not only restricted them from integrating within society but also prevented them from gaining a higher income. Therefore, Madigas were influenced to migrate to an area with more employment opportunities. Income opportunity is also a macro factor that depends on the context of a rural or urban environment. "If economic growth is rapid than income differentials tend to be the most powerful drivers of migration, as for example, has been the case with internal migration to megacities in China, India and increasingly, in African countries too" (Black et al, 2011). In the case of the Dalit's greater income opportunity awaits them where there is a diverse employment such as in urbanized cities, like Bangalore. Even though these factors are foundational to understanding the flows of migrants, it's good to look beyond these factors. To go beyond the push-pull theory I would also like to bring to light the 'threshold approach' for a greater insight of influential factors that have put migrants' ideas into play (Hillmann et al, 2017)[1]. The threshold approach are three thresholds that highlight passive migration to active migration behavior. First off is the trajectory of the mental threshold, which are the feelings and a sense of belonging to the location of which the person is aspiring to live (Hillmann et al, 2017). After the decision to move is made, the next threshold is to answer the question of where to go (Hillmann et al, 2017). The answer to this question comes with the availability of networks, language skills, and religious affiliation (Hillmann et al, 2017). Finally, the third threshold is the means of the person to get to the destination (Hillmann et al, 2017). The phrase, *by all means necessary* is applicable to all the types of migration around the world, that being by walking, taking the train, by bus, or by car. Now that I have covered fundamental principles that shape the decision to migrate its essential to understand the circumstances that are faced when a person moves to an urbanized area, such as Bangalore, one of the largest cities in India?

2.2 Informal settlements

For many rural migrants moving to a metropolitan city means an opportunity to improve their well-being. Upon arriving from a rural to an urban environment many people live in the only housing they can afford, which is usually an informal settlement. Informal settlements can be defined as "densely populated urban areas characterized by poor-quality housing, a lack of adequate living space and public services, and accommodating large numbers of informal residents with generally insecure tenure" (Marx et al, 2013, p.187). The term slum and informal

---

[1] Credit given to an earlier source of the threshold approach: Van Der Velde, M., & Van Naerssen, T. (2016). *Mobility and migration choices: Thresholds to crossing borders.* Routledge. **https://hdl.handle.net/2066/170736**

settlements are similar in their definitions; therefore, the words will be used interchangeably in this thesis. Close proximity to a metropolitan city can have many barricades for people like the Dalit's, whom are trying to access the resources within Bangalore. Marx (2013) argues that "the environment of informal settlements makes it difficult for a person to achieve improvements in standards of living through marginal investments in housing, health, or infrastructure" (Marx et al, 2013, p.191). The circumstances faced when living in an informal settlement is the lack of rights for its citizens, and high rent prices. Many informal settlements lack formal land titles which limit their rights as residents to access incentives they need to improve their living conditions. "In Dakar and Nairobi, only ... 34 percent of owners respectively report that it is easy to transact housing in their areas" (Marx et al, 2013, p.194). Informal settlements are commonly priced with high rent premiums because of the close distance to a city. A majority of the residents' money goes towards rent, limiting the ability to accumulate savings, causing the inability of personal investment into the housing that they are renting, or even for purchasing a home as an owner (Marx, 2013). Besides the lack of investments, informal settlements often face complications when it comes to policy. Because of the informal status it is common that they are neglected when it comes to urban planning or when there is policy decision making. The inaccuracy of enumerating an informal population can cause misrepresentation in the political process. "In India, slum populations were comprehensively enumerated for the first time in 2001, but discrepancies in the state-level definitions of slums and the refusal of some states to validate the slums statistics resulted in "gross under-estimation/under-coverage of slums populations in the country" (Marx et al, 2013, p.198). It is clear to see that there is a combination of circumstances that impact a person living in an informal settlement, such as a lack of investment, and inadequate representation in policy. The circumstances that are caused by each of these factors trickle to the ability of a person being able to access water in an informal settlement.

2.3 A lack of access to water among informal settlements

A lack informal settlements being included in policy, and a lack of monetary investments into the housing of informal settlements can have many problems, such as being able to access water. There has been a steady improvement of access to water largely due to the access of public taps, however many households around the world still stand without access to water. "This trend is confirmed by household studies … [showing] that household connections in Lagos, Nigeria, declined over time and currently only 5 percent of households in the city are connected to the public water system" (Dagdeviren et al, 2009, p.4). As we observed in the study of Marx (2013) a common problem was the lack of formal land titles. The misinformation

of the settlements and the unregistered land titles leads to utility networks not having the responsibility of providing access to water to the households (Dagdeviren et al, 2009). The paradox here, is that there is no affordable legal alternative, yet in their self-built environment they are considered to have broken the law. The bridge for many households to access water is two-fold. First, households independently source their water from a borewell, tube well, dug well, or surface water (Dagdeviren et al, 2009). The other option is to depend on a public or privately managed structure, such as a water kiosk (Dagdeviren et al, 2009). The financial and physical strain of fetching water daily, every other day, or weekly could be solved if the infrastructure existed to provide access to water in a household.

Many informal settlements are built out of necessity, meaning that these homes are built with little planning support and/or recognition from the government. The difficulties that come with the urgency for accommodation are the terrain, location, and the quality of the housing. Sometimes informal settlements are built on terrain, such as flood plains, hills, ravines and desert land (Dagdeviren et al, 2009). Network utilities have difficulty providing access to water to households because the type of terrain is not suitable to accommodate the infrastructure needed to provide access to water. Furthermore, the location of where homes are constructed are not prioritized with urban planning. In turn the lack of involvement in city planning makes it difficult, and in some circumstances, impossible for informal settlements to be connected to utility networks that can provide access of water to a household. "[W]ater utilities in planned areas may be arranged by construction under a central roadway with residential connections branching off this, such a conventional approach is impractical in crowded informal settlements'' (Dagdeviren et al, 2009, p.8). Informal settlements are commonly built with minimal funding and out of necessity, therefore the quality of the house is not adequate to support access to water. Some of the materials that are used to build these homes are made out of thickened mud, plant leaves and stems, tin and plaster boards, all of which are not the proper infrastructure for providing access to water (Dagdeviren et al, 2009). The ability to access water is not only because of the affordability of clean water, but many variables such as the terrain, access to utility networks, and rights for tenants.

2.4 Socio-spatial (in)justice theory

2.4.1 Social justice and sustainable access to drinking water in western Europe

In this section I will put forth the meaning of social justice and the association it has with access to water. Social justice is the just distribution of benefits (Miller, 1999). First, it's

important to identify what benefits are and the role they play, then to specify a just distribution of said benefits, following with an example of a just distribution of benefits. There are countless benefits that can contribute to a person's sustainable livelihood (Jackson, 2020). Benefits are arguably subjective, however there are a few that are of relative importance, such as money and commodities, education, medical care, housing, jobs, and transportation (Miller, 1999). Specifically, water is a commodity that acts as a benefit for a person to have a sustainable livelihood. It is now worth exploring what constitutes a just distribution of benefits. Aristotle (384 BC - 322 BC) attributes a just distribution of benefits as "the fair distribution of [benefits] among the members of various associations: in giving his account, Aristotle probably had in mind not only the distribution of [benefits] to office-holders and *citizens* in need, but also the distribution of [benefits] within clubs and other such private societies" (Miller, 1999, p.9).

A case of social justice: Access to water in western Europe

An example of a just distribution of benefits can be seen in a list of figures on the sustainable access to drinking water sources presented by the World Health Organization (WHO). The WHO lists a handful of countries from Europe, such as Austria, Denmark, Finland, the Netherlands, and Germany that offer a 100% of their population sustainable access to drinking water sources (Rogers, S. 2009). In these countries there is a state of social justice in the context of access to water because 100% of the population has access to water, which is a means for a person to pursue a sustainable livelihood. The different inner workings of these countries account for the sustainable access to water, from infrastructure that reaches all the residents, to jobs like biochemist that work in the health care sector that confirm the quality of water.

2.4.2 Social injustice: A lack of access to water in Papua New Guinea, US, & Ghana

In this section I will put forth the meaning of social injustice and the association it has with access to water. Bufacchi (2012) suggests that social injustice is the unjust distribution of benefits. A claim of unjust distribution of benefits implies that a specific group of people are being subject to fewer of the benefits compared to other groups of people (Miller, 1999). Bufacchi (2012) provides three dimensions, in terms of distribution, that clarify affairs which manifests into social injustice. These are maldistribution, exclusion, and disempowerment. Before explaining in detail what these dimensions are, it is necessary to acknowledge a critique

on the linear argument that these three specific dimensions manifest into social injustice. The outcome of social injustice can be from an array of factors, such as corruption and nepotism, to racism (Bufacchi, 2012). For example, the unjust distribution of benefits can be because of corruption which is characterized by violence. Therefore, violence being a critical component that is preventing a just distribution of benefits. The argument that maldistribution, exclusion, and disempowerment are relative to the unjust distribution of benefits is applicable because their characteristics correspond with the ability for a person to access benefits like water. The characteristics of each dimension will be explained in further detail, as well as how they impact the just distribution of water.

Maldistribution is the first dimension that influences the state of social injustice. Maldistribution is the "improper distribution of benefits, [natural and social,] … that are distributed according to criteria, [institutional and non-institutional,] that not everyone could reasonably accept" (Bufacchi, 2012, p.9 - 10). The importance of a fair distribution of benefits can be seen in an essay that explores the dimensions of equity and sustainability from an analysis on public goods. The results of the essay have found that when there is a lack of governance in the fair distribution of benefits, sustainability is at risk (Stanton, 2012). In the realm of access to water, maldistribution also plays a role. The cost of water is a criterion that plays a crucial role in its distribution.

<div style="border:1px solid black; padding:10px;">

A case of maldistribution: The cost of water in Papua New Guinea

The notion of a person's ability to afford the cost of water is subjective across all members of society. The subjective reality of a person living in poverty that has to pay for water is seen in a statement by WaterAid. "In Papua New Guinea, an average person living in poverty will spend 54% of their salary to access the [WHO's] recommended minimum 50 [liters] of water per day to meet basic needs" (Haile, 2016). How is it that a person in Papua New Guinea who is spending 54% of their salary for water experiencing social injustice? They are experiencing social injustice because the criteria to access water, its cost, is limiting Papua New Guinean's that are living in poverty from accessing it. It is possible to argue, in theory, that the cost of water is affordable for Papua New Guineans living in poverty since it does not occupy 100% of their salary. Countering this argument, one could say that it is not a constant possibility for them to pay 54% of their salary. Sometimes bad things happen, a shock in other words, to people that are living in poverty. Let's take a shock that is most relevant - a person living in poverty becomes ill because of Covid-19. After their hospital

</div>

visit, they have medical bills. In this circumstance a critical decision of how to finance their medical expenses needs to be made. A study on financial instability in the context of persistent poverty revealed that a financial coping strategy for a family in poverty is to "cut back on basic but less essential needs" (Gennetian et al, 2015, p.909). The result of this study applied means a person in poverty will cut back on basic but less essential needs like sanitary water, and therefore turn to an alternative cheaper or free source of water, such as surface water. The criteria to access sanitary water, its cost, is a characteristic of the dimension 'maldistribution' that is preventing the just distribution of water, resulting in social injustice.

Exclusion is the second dimension that influences the state of social injustice. Exclusion is the "actions or policies undertaken to exclude others as legitimate recipients of the distribution of [benefits] … [that is] experienced by either individuals or groups" (Bufacchi, 2012, p.10). An example of policy that excluded people as legitimate recipients from the distribution of benefits were the Jim Crow laws in the United States.

A case of exclusion: Jim Crow laws excluding African-Americans from purchasing homes

Jim Crow laws, were laws from 1877 - 1925 that facilitated racial segregation (Turner 2006). A consequence of Jim Crow laws was the dictated process of selling and buying homes. In Savannah, Georgia " segregation laws around 1910 … enacted municipal ordinances prohibiting white [people] ... from selling their homes to black [people]" (Troesken, 2002, p.737). Segregation laws, like these, are an example of a policy that impairs the just distribution of benefits, in this case housing, and then eventually water. Municipal ordinances that prohibited black people from buying homes immobilized their ability to relocate into certain areas of Savannah. Consequentially neighborhoods formed that were predominantly occupied by a race. "In 1890 [Savannah], the average black [person] lived in a city-ward that was only 20 percent black; by 1970, the average black [person] lived in a ward that was 70 percent black" (Troesken, 2002, p.736). Concurrently, the yellow fever disease was claiming many lives. Medical knowledge at this time believed that the improvement of access to sanitation and

water would be an appropriate method to prevent the disease from spreading (Troesken, 2002). In response water and sewer mains were built in Savannah, but unfortunately four predominantly black neighborhoods that accounted for 81% of black people's addresses in the city did not have access to the water and sewer mains that were built (Troesken, 2002). In observance, Savannah's concentrated black neighborhoods are victims of social injustice because of the exposure to an unjust distribution of housing which prompted their inaccessibility to water and sewer mains. The inability to live in homes that had access to water and sewer mains in Savannah further risked a person's opportunity of pursuing a sustainable livelihood.

Disempowerment is the third dimension that influences the state of social injustice. Disempowerment is when a person experiences a state of "social injustice [that] exposes and exploits [their] vulnerabilities; victims … are disempowered … therefore excluded from the distribution of [benefits]" (Bufacchi, 2012, p.10). The unjust distribution of water is an example of an issue that has led to the disempowerment of women and children in Dungu, a rural community on the outskirts of Tamale, a metropolitan city of the Northern Region of Ghana.

A case disempowerment: The Dungu dam in the northern region of Ghana

The Dungu dam is the main source of water that is available to the Dungu community. Sadly, it's not a "reliable source of water because it dries up two months into the dry season in November and remains in that state until the rains start in June" (Alhassan et al, 2013, p.47). A survey was conducted to understand the consequences a member of the Dungu community experiences when being subjected to vulnerability. The consequences they experience are what disempower them, thereafter excluding them from the distribution of benefits. Vulnerability, when it comes in connection with people, can be viewed as the "[risk of] access to resources either at a household, or at an individual level as the most critical factor in achieving a secure livelihood" (Proag, 2014, p.370). Applied to the Dungu community, their vulnerability is a lack of access to water, which is a critical factor. The survey has revealed that children have

"either been late or absent from school, the effect of which may be that they drop out" (Alhassan et al, 2013, p.48). Children that did not complete their education, who live in a community that experiences a lack of access to water, results in their disempowerment. This is because the consequence they face in a community that is suffering from a lack of access to water has impacted their ability to attend school, thus disempowering them from a just distribution of benefits, in this case education.

Sen's entitlement approach

As part of my theoretical approach, I would like to bring to light an Sen's entitlement framework, as it will be used in my analysis of social injustice. Amartya Sen (1981) 'entitlement approach' is a framework that offers a clear perspective to the entitlements a person can command. The 'entitlement approach' centers itself on the relationship between a person's endowments and their entitlement to commodities (Sen, 1981). A person's circumstance and their entitlement to commodities defines their 'entitlement set'. The 'entitlement set' can be seen in three parts a) their 'endowments' which are assets and resources that the person has ownership over (Devereux, 2001). These endowments are filtered through b) 'entitlement mapping' (E-mapping) characterized by legal, political, economic, and social channels. Each of these channels mandate the transfer of a person's endowments into c) a person's entitlement to commodities (Sen, 1981). Figure 1 displays how a person's endowment is filtered through the characteristics of 'E-mapping' which reads from left to right a) endowments → b) entitlement mapping → c) entitlement to commodity bundles. Sen (1984) offers how this is played out in a market economy by giving an example that, "if a person can, say, earn $200.00 by selling his labor power and other saleable objects [, such as assets] he has or can produce, then his entitlements refer to the set of all commodity bundles costing no more than $200.00. He can buy any such bundle, but no more than that, and the limit is set by his ownership ('endowment') and his exchange possibilities ['(E-mapping)], the two together determining his over-all entitlement" (Sen, 1984, pg.497). This example is true for a purely market driven economy but can be applied to other frameworks, such as socialist frameworks that supply entitled commodities, such as free access to social benefits like health care and education. The entitlement set in Sen's (1981) entitlement approach is a framework which can be used to bridge the understanding of rights to water in India on the national level.

Figure 1: Visual of Sen's entitlement set (Sen, 1981)

A) Endowments 'Ownership'		B) Entitlement mapping 'E-Mapping'		C) Entitlement to 'commodity bundles'
Assets & Resources	→	Legal Political Economic Social factors	→	Water Income Social benefits
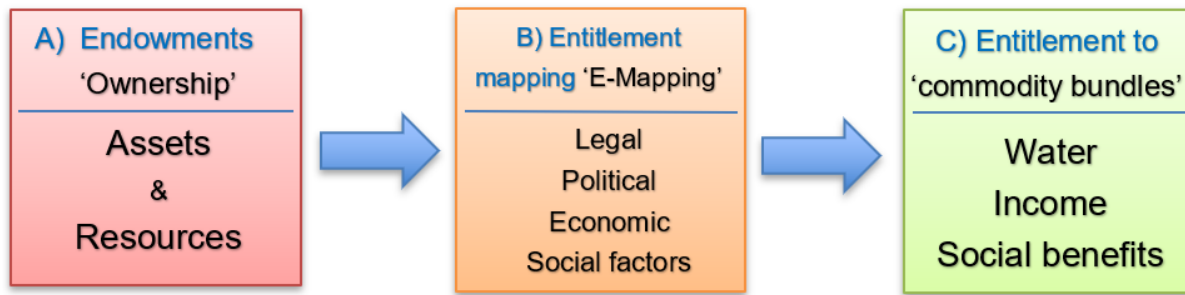
2.4.3 Spatial justice and water management in Rotterdam, the Netherlands

Lefebvre's (1972) rights to the city as an opening to spatial (in)justice theory

The premise of Lefebvre's (1972) right to a city entails that a lack of right for a person limits their ability to access the benefits of a city. Lefebvre (1972) influential work on the 'Right to the City' suggest that there are two principles when it comes to urban citizenship. The first, is that there is a right to participation, meaning citizens should play a role in the decisions that contribute to the production of space (Martinez et al., 2021). Secondly, is the right to appropriation, meaning that citizens have the right to access and occupy the urban space for individual and community needs (Martinez et al., 2021). "Lefebvre insists that inhabitance in a city alone ought to be a basis for these rights rather than any formal status (Martinez et al, 2021, p.299). This applied to the context of this thesis, suggest that rural migrants that relocate to Bangalore, should have access to the benefits they need individually or for their community. Scholars have applied this foundational thinking to understand politics and power. Scholars such as Gaventa (2006) have brought to light the idea of 'closed' spaces, meaning that decisions are made behind closed doors with a specific set of actors (Martinez et al., 2021). Furthermore, the notion of the 'closed' door tactic is amplified with researchers writing in the Indian context. In an examination on discursive-spatial strategies in India, Fernandes (2004) coins the 'politics of forgetting' by stating that the discursive process in India "entails a purification of space [that is] centering around middle class and aesthetic claims to space, which creates an 'exclusionary form of cultural citizenship' (Martinez et al., 2021). In a wider scope I will explore the rights to a city in the following passages through the lens of the spatial injustice theory.

In this section I will define and provide an example of spatial justice. Soja (2009) states that spatial justice is the fair and equitable distribution in space of socially valued resources. The term 'space' can be referenced as a variety of aspects that span from urban planning, to law, social welfare, and theology (Soja, 2013). 'Socially valued resources' can be referred to as the benefits that act as a means for a person to pursue a sustainable livelihood. The essence of fair and equitable distribution is the opportunity to access 'socially valued resources' through the various aspects of 'space' (Soja, 2013). For an example of spatial justice, we can observe a country that prevailed in terms of urban planning, which has allowed for the fair and equitable distribution of socially valued resources.

Spatial justice: The case of water management in the Netherlands

The Netherlands is no stranger to a history of environmental issues that are marked by heavy rainfall and flooding. Dutch municipalities' water management initiatives have handled heavy rainfall and flooding to ensure a fair and equitable distribution of socially valued resources, such as housing. Rotterdam is one example of many cities in the Netherlands that has experienced heavy rainfall and flooding (Dai et al, 2018). The city's urban planning has implemented methods to protect the outer-dike areas from heavy rainfall and flooding. "Examples include 'flood-proof' buildings, construction of flood-proof public areas, and floating communities (Dai et al, 2018, p.656). In the case of Rotterdam, the protection from flooding and heavy rains has prompted it to protect buildings from being damaged, thus allowing for the fair and equitable distribution of housing. Therefore, a state of spatial justice can be argued because the use of space, urban planning, has allowed for a fair and equitable distribution of socially valued resources, housing. The ability to access housing is a just distribution of a benefit that can support a person's sustainable livelihood.

2.4.4 Spatial injustice and its four underlying processes

In this section I will put forth the definition of spatial injustice, as well as its four underlying processes. Soja (2009) explains that the concerns of spatial injustice are the processes that produce geographies or distributional patterns that are in themselves unjust in the distribution of benefits. Soja (2009) provides four underlying processes, which are locational

discrimination, political organization of space, geographically uneven development, and an economic system. In this section I will illustrate how the various aspects of 'space' affect each of the underlying processes, resulting in spatial injustice. For example, it may be possible to say that an aspect of space, such as a law, affects an economic system, which is an underlying process that produces a geographic and distributional pattern that is unjust. In the following paragraphs I will explore how this particular interconnectedness gains an insight into an unjust distribution of benefits, such as water.

Locational discrimination is an underlying process described as "the biases imposed on certain populations because of their geographical location, [which is largely influenced by their] ... class, race, and gender" (Soja, 2009, p.4). An example of the biases imposed on a population because of their race is the previously mentioned case of Jim Crow laws in Savannah, Georgia.

A case of locational discrimination: Jim Crow laws in the southern regions of the United States

A law of segregation is an example of a space which prevents black people from buying homes from white people. This led to the geographical location of their homes to be predominately black. The bias imposed on these neighborhoods was that they did not have access to water or sewer mains, whereas white homes did. Therefore, we can conclude that a law influenced their geographical location, because of race, which led to the inaccessibility to water and sewer mains. In this context there is not a fair and equitable distribution of a benefit, water. The lack of access to water, a socially valued resource, is a benefit that can be used for a sustainable livelihood.

Political organization of space is the second underlying process of spatial injustice that is referred to as the "unethical practice that puts services (financial and otherwise) out of the reach of residents in certain areas based on race or ethnicity" (Soja, 2009, p.4). An example of the effects of political organization of space can be highlighted when viewing the unethical laws of the apartheid in South Africa from 1984-1994.

A case of political organization of space: Laws of the apartheid in South Africa

The laws of an apartheid marginalized groups of people based on their race by imposing restrictions on "free movement, political representation, equal

---

24

access to education and health services, and to basic services" (Nnadozie, 2013, p.82). A study on access to basic services in post-apartheid South Africa has reported that in 1996 "[b]lack households were six times less likely than white households to have … access [to piped water]" (Nnadozie, 2013, p.96). We can recognize that the laws of an apartheid are an aspect of 'space' which has subjected black South Africans to the underlying process of political organization of space. The reason for this is because, based on their race, the laws of an apartheid restricted them from basic services such as piped water. In consequence it prevented a fair and equitable distribution of piped water, a socially valued resource, which is a means for a person's sustainable livelihood.

Geographically uneven development is the third underlying process that contributes to spatial injustice. This means that the relationship between people and the physical environment produces an unequal distribution of people, resources, and wealth (Warf, 2006). The issue of a lack of access to water in Mexico City can be seen through the underlying process of geographic uneven development.

A case of geographic uneven development: Spatial planning of Mexico city's infrastructure

Four hundred years ago Mexico City was an island that rested on lake Texcoco (Gispert et al, 2018). Over time 1,800 wells were installed to extract water from its aquifers, consequently drying its surrounding water sources. Concurrently, to prevent flooding from Mexico city's rainy season infrastructure was built to extract water from the surface of the ground. The extraction of water from the surface of the ground and the deterioration of water sources in Mexico City resulted in less water reaching the aquifers, thus making them almost depleted (Gispert et al, 2018). This has caused Mexico city's physical terrain to slowly sink into the ground. The issue of access to water is two-fold, the constant sinking of the ground, as well as the depletion of water in the aquifers. "[E]xtreme and uneven land subsidence, due to intensive extraction of groundwater, continually damages the grid, leading to an estimated 25% loss due to leaks, and an additional 14% that goes unmetered and is largely unaccounted for (Gispert et

al, 2018, p.2). In this particular case, urban planning, an aspect of space, has caused damage to Mexico city's grid line which has limited the distribution of water. In this context the aspect of space has affected the underlying process of geographical uneven development, causing spatial injustice. Furthermore, the lack of access to water is the unfair distribution of a socially valued resource which acts as a means to a sustainable livelihood.

The economic system is the fourth underlying process that contributes to spatial injustice. Economic system is referred to by Wolff (2012) as the economic environment that an individual contributes to through their labor and/or purchases in the marketplace. The different types of economic systems are traditional economies, market economies, command economies, and mixed economies (Wolff, 2012). An example of an economic system that has led to spatial injustice is a market economy.

Economic system: Coca-Cola and its pollution on the environment

A market economy is when "markets play a dominant role in coordinating decisions [of privately owned business,] … [the] [m]arket forces are the supply and demand factors that determine prices and quantities [produced]" (Black, 1997, p.288). A country that is characterized by a market economy is the United States. Coca-Cola is a company in the US that has revealed in 2019 that its production has created 'three million tons of plastic packaging a year' (Farmbrough, 2019), which has caused a massive amount of pollution to water sources. An annual audit on plastic pollution ranks Coca-Cola as No.1 for plastic pollution to beaches, rivers and parks (McVeigh, 2020). We can witness from the case of Coca-Cola that a lack of law, an aspect of space, has influenced an economic system as an underlying process to spatial injustice. This is because the type of economic system, a market economy, has allowed Coca-Cola to be unrestricted when producing plastic that has polluted public water sources. The pollution of these public water sources is grounds for spatial injustice because it has prevented the unjust distribution of a socially valued resource, water. Furthermore, the pollution of public water sources is preventing their use for a sustainable livelihood.

2.5 Sustainable livelihoods framework

The story of Samrun presents how a lack of access to water makes it difficult to live a sustainable livelihood. So, what does a sustainable livelihood mean? A framework on sustainable livelihoods by the United Kingdom's (UK) Department for International Development (DFID) suggest that "[a] livelihood is sustainable when it can cope with and recover from the stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (DFID, 2001). Figure 2, below, illustrates the sustainable framework. The framework has been reformatted from the original DFID framework to fit the issue of access to water in Bangalore that I am researching, however still maintaining the correct impact each variable has on one another. The original DFID, can be viewed in the appendix of this thesis. Beginning with the box on the left, 'Transforming Structures & Processes', is a dimension that can act alone to influence the vulnerability context and/or the livelihood assets of a person (DFID, 2001). The 'Structures' section consist of the organization of the public and private sector and the 'Processes' section are the laws, policies, culture, and institutions of a society. Both areas can have an influence on the vulnerability context of a person and/or the livelihood assets of a person (DFID, 2001). For example, in Rotterdam laws which require flood proof housing exist to provide access to physical capital (housing). The vulnerability context consists of shocks, trends, and seasonality. I will focus on the concept of 'shock' as it relates closely to the previous example on the Netherlands. The type of shocks that exist are human and health shocks, natural shocks, economic shocks, conflict, and crop/livestock health shocks.

Figure 2: Sustainable livelihoods framework (DFID, 2001)
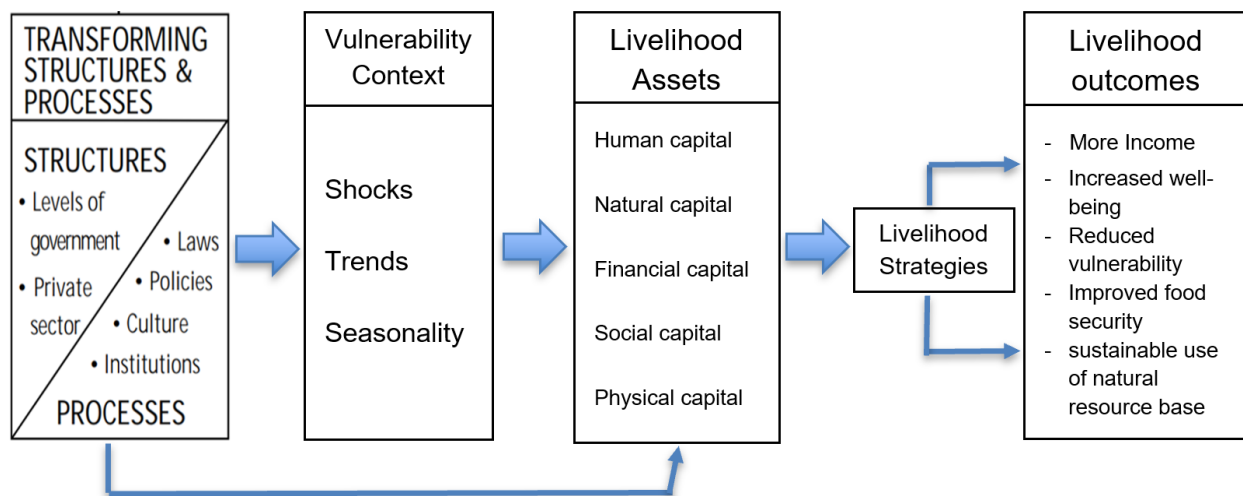
A shock, such as flooding in the Netherlands impacts the dimension of 'livelihood assets. Livelihood assets focus on core asset categories that livelihoods can build on, that being human capital, natural capital, financial capital, social capital, and physical capital (DFID, 2001). In the example of a natural shock (flooding) the livelihood assets that are directly at risk are physical capital (homes). In the case of Rotterdam, the physical capital (houses) is protected because the law (processes) ensures flood proof housing. Thereafter, in the framework is the livelihood strategy, which is a composure of 'livelihood assets' and various 'transforming structures and processes' (DFID, 2001). This means that the livelihood strategy is to adapt to the assets available to one's livelihood, as well as the structure and processes of the environment they are living in. Following are the livelihood outcomes, which are the achievements or outputs of livelihood strategies (DFID, 2001). Achievements are an increased income, increased well-being, reduced vulnerability, improved food security, and more sustainable use of natural resource base (DFID, 2001). Turning to the example in Rotterdam, people that have flood proof housing experience a reduced vulnerability because they have a barrier of protection from a natural shock from the vulnerability context.

2.6 Conceptual model

I want to take this moment to walk through the conceptual model of this thesis, which is presented below. The outset of the phenomenon of a lack of access to water that this thesis researches begins with the rural to urban migrants in Bangalore. The concept of their flow of migration to Bangalore is supported with the push-pull theory and the thresholds approach. The thesis moves onto exploring the experience of socio-spatial injustice of rural to urban migrants, mostly Dalits that are living in Bangalore. Both of these concepts are applied to the lack of access to water for this specific population. Finally, I engage in understanding the livelihood outcomes that are experienced of this particular population which is experiencing a lack of access to water and observe how this has an impact of their opportunity for a sustainable livelihood.

Internal migration	Social injustice	Spatial injustice
Rural to urban migrants in Bangalore	- Maldistribution - Exclusion - Disempowerment - Sen's entitlement approach	- Lefebvre's right to the city - Locational discrimination - Political organization of space - Geographic uneven development - Economic system

Access to water

Livelihood outcomes
- More income - Increased well-being - Reduced vulnerability - Improved food security - More sustainable use of natural resource base

Sustainable livelihood

3. Methodology

3.1 Research aim, rationale of a case study, and a discussion of the unit of analysis

This thesis investigates the problem of a lack of access to water and the impact on the sustainable livelihoods of non-notified informal settlements. The inquiry to the problem asks: *What are the effects of socio-spatial injustice on the accessibility to water and how does it impact the livelihoods of non-notified informal settlements in Bangalore?* The aim of this research is in the form of cause-and-effect, the cause being a lack of access to water and the effect being the sustainable livelihoods of non-notified informal settlements. The rationale of Bangalore as a case study is to gain an understanding of its real-world context of access to water in India. The unit of analysis of this thesis provides an empirical understanding into the reason for the flow of internal migration into Bangalore. Rural populations that have experienced social immobility like the Dalit caste often search for a better life to live by moving to a metropolitan city like Bangalore. The beginning sections of the analysis uncovers research that shows internal migrants moved for a better income, higher levels of education, and thresholds such as a sense of belonging because of ties to family networks. In my research I am seeking to understand the effects of socio-spatial injustice on a lack of access to water for migrants that have relocated to Bangalore. There is no doubt about it that the lives that we live are shaped by the environment that we live in; from institutions to our physical environment. This is especially true for migrants that lack rights to the city of Bangalore. The data in my analysis provides evidence which highlights how a lack of inclusion in policy is preventing the access to water for people that are living in non-notified informal settlements. On another note, I direct my analysis to focus on the external forces that influence many people to fall into the cracks of Bangalore and thus be identified as 'non-notified'. To amplify this approach, I use the Ejipura eviction as a case within a case for my analysis. Different facets of the Ejipura eviction are relevant to the argument of spatial injustice through the concept of geographic uneven development. With this story data is applied in the analysis to support the unequal distribution of wealth, people, and resources which have led many people to live in non-notified informal settlements in Bangalore. I finish my analysis with empirical research of how the opportunity to a sustainable livelihood is impacted when there is a lack of access to water. The final sections of the analysis bring to light health shocks, like diarrhea, fever, and high blood pressure that Ejipura evictees are experiencing while living in a non-notified status. I also apply data that looks at the notion of capital and the role is plays in their lack of access to water. Concluding is data on the decision-making process as a coping strategy, and how these plays into the vulnerability they are

experiencing. An in-depth analysis on these specific variables clarifies the opportunity for a sustainable livelihood of people living in non-notified informal settlements that do not have access to water.

3.2 Data collection

The data collection of my thesis consists of a variety of secondary data to critically investigate a lack of access to water in Bangalore and the impact on the sustainable livelihoods of non-notified informal settlements. In my thesis I've gathered a combination of publications and archival data to further investigate the phenomenon of a lack of access to water. In this section I will provide the type of data that has been collected and the use of the data for all three sections of my analysis. The first set of data collected is used to explore the concept of social injustice as a unit of analysis in my thesis. The aim of this data is to bring an in depth understanding to my first research question – *What does policy from the United Nations and the constitution of India establish about accessibility to water? How does this compare to policy that dictates access to the distribution of water in Bangalore?* I begin my analysis by drawing the boundaries of my thesis to begin in the arena of the international community to investigate policy focused on the accessibility to water. Investing policy on water at the international level in the United Nations I have collected a combination of archival data and publications from international organizations that specify a person's right to water. To gain current perspective on the need for water and a person's rights to water, in a time of Covid-19, I have explored a webinar with international practitioners that explain the importance of access to water in developing countries. Further I bring to light the experiences and knowledge of a long-time water advocate Maude Barlow by providing secondary transcribed interviews[2] to understand past realities of the need for access to water. Moving in the direction on the topic of access to water in Bangalore I focus my data collection on the accessibility to water on the national level in India. In this area of my data collection, I analyze the role of water in legal debates that applied Article 21 of India's constitution. A collection of data on the use of India's constitution gives a unique insight into how a citizen of India's rights are protected when it come to the accessibility to water, and narrows the scope of my research from an international to a national level. Narrowing my research onto a local level, Bangalore, I collect data on policy that is focused on accessibility to the distribution to water for non-notified informal settlements in Bangalore. In this section of my research, I collect publications that give a critical insight into

---

[2] Interview with Maude Barlow, a water rights activist that offers her opinions and personal experiences from the frontlines of international grassroots water movement. Link: http://www.jstor.org/stable/24358121

Karnataka's, the state that Bangalore is located in, policy on the distribution of water and what this exactly means for people that are living in non-notified informal settlements. Throughout the first set of data collection, I aim to understand if there is an experience of exclusion (an element of social injustice) via policy by observing policy on rights to water at the international level, then moving in the direction of understanding a person's right to water on the national level, thereafter focusing on the access to the distribution of water in Bangalore.

The second part of my data collection explores the concept of spatial injustice as a unit of analysis by shedding light on the geographic uneven development circumstances that are faced by rural to urban migrants in Bangalore. The purpose of my data collection is to provide an understanding to my second research question – *What is the relationship between recently migrated populations in Bangalore and the physical environment that's produced an unequal distribution of wealth, people, and resources?* At this point of my research, I mark the boundaries of this portion of my thesis by collecting data that will reveal the occupational gap of Bangalores workforce. I collect organizational archival data that gives a precise understanding into the different types of employment in Bangalore. Taking this approach helps to give a clear understanding of who and why people are living in Bangalore. I zoom my research in further by seeking to understand the surrounding factors that play a role into why many people have relocated to Bangalore, as well as the hardship that is faced for rural to urban migrants when relocating. A collection of secondary data consists of archived data that can specifies the exact reasons why so many people have relocated to Bangalore. In addition, I have utilized professional art work to understanding of the hardship that is faced among the transition for rural to urban migrants. I orientate my research to focus on the experience of spatial injustice of relocated rural to urban migrants by researching an episode of unequal distribution of wealth, people, and resources in Bangalore. I collect data on a combination of 24 sources consisting of publicized reports, assessments, news articles, press releases, petitions, and blogs, for a qualitative analysis. It is my aim to use this data highlight the concept of spatial injustice that in turn leads to a lack of access to water for rural to urban migrants that are living in Bangalore.

The third part of my data collection investigates a sustainable livelihood for people that are living in non-notified informal settlements without access to the distribution of water in Bangalore. The idea of my data collection is to provide an understanding to my third research question – *What is the impact of differential access to water on overall opportunities for sustainable livelihoods of Dalit residents in informal settlement of Bangalore?* In this part of my analysis, I use the sustainable livelihoods framework as means to investing the opportunity for a sustainable livelihood of Dalit residents. I begin my data collection by gaining an insight into the

vulnerability context, specifically human health shocks of Dalit populations living in non-notified informal settlements. I collected secondary data from Dr. Sylvia Karpagam on the response to her visit to non-notified informal settlements in Bangalore. I continue my research by seeking further about the livelihood assets that are tied to a lack of access to water for non-notified informal settlements. In this part of my analysis, I collect four testimonies of people that are living in non-notified informal settlements in Bangalore. The testimonies of these people give an on-the-ground understanding of the assets, or lack thereof, that contribute to the ability to access water. I continue to direct my research to understand the livelihood strategies that are undertaken when there is an experience of a lack of access to water for people that are living in non-notified informal settlements. For this part of my research, I collect publications that reveal a coping strategy for populations that are experiencing hardship, such as a lack of access to water. This part of my research is also used to support the livelihood outcomes of people that are living in informal settlements. I then focus my attention to understand if there is a reduced vulnerability to people living in non-notified informal settlements that do not have access to water. Archival data is collected to highlight the basic services and health services that are used by people who do not have access to water in Bangalore, thus supporting the coping strategy of the sustainable livelihood's framework.

The use of data has been collected for my thesis supports the claim of risk that is involved for people that are living in non-notified informal settlements in Bangalore. Policy on the accessibility to water is of question in regards to who is entitled to the use of water, a vital need for human existence. With or without a policy that allows accessibility to water for Bangalore residents is the geographic development a person is exposed to. In a city that is expanding it metropolitan area people that have recently relocated possibly are at risk of the resources that are available to them which allow them to gain access to water. Both point of impact on a person, policy or their geographical environment, dictate the opportunity for a sustainable livelihood in Bangalore. The absence of a backbone, such as policy or reliable geographic development, can have severe effects on a persons sustainable livelihood.

3.3 Methods of analysis

International policy analysis on water

A largely qualitative method has been applied to analyze data collected. Various approaches such as content, thematic, and discourse analysis have been used to gain a comprehensive understanding of each part of the analysis. This section explains the methods

used for all three parts of the analysis. The first part of the analysis is divided into a multi-level policy analysis (international, national, and local). The international level policy analysis is divided into four different sections which gives attention to the United Nations and sustainable development goals (SDG). First is a brief history of the creation of the sustainable development goals will be explain. Then I will look at Sustainable development goal 6: Clean water and sanitation. This uses a discourse analysis of a report that emphasizes the importance of access to clean water for marginalized groups. My analysis then focuses on target 6.1 of SDG 6 to understand how water is safe, affordable, universal and equitable. To understand how water is safe analyze a webinar of international practitioners via a discourse analysis to gain insight into how they speak of the importance of safe water. Secondary archival data from the World Health Organization (WHO) is used to define the affordability of water, and thus a thematic approach of tables and graphs show the affordability of water for poor populations in India. Universal and equitable access to water is analyzed via a discourse analysis from secondary data of a transcribed interview. The interview is with a water rights activist, Maude Barlow, however it is connected with what academics and experts are saying about universal and equitable access to water. The international level policy analysis on water is concluded by investigating United Nations resolution 64/292. This is done via a discourse analysis of social media tweets from vital actors in India's government that agree to resolution 64/292.

National, & local policy analysis on access to water

The second part of the multi-level policy analysis is a policy analysis of access to water on the national level. This part of the analysis is divided into three different sections. The first section begins by analyzing India's National Water policy by utilizing a discourse analysis of secondary data from India's national government. The following section sets the foundation for the analysis on national and local policy to water by establishing a framework of Sen's entitlement approach. India's national policy on water analyzes the legal protection to water via three prominent legal cases in India's highest courts. All three cases consist of issues regarding the pollution of water, which in turn has jeopardized the access to water for India's citizens. A discourse analysis is used from a collection of secondary data and then applied to the Sen's entitlement framework to understand the rights of access to water for Indian citizens in regards to each of these court cases. The third part of the multi-level policy analysis focuses on exclusion via a lack of inclusion to water in policy on the local level. This part of the analysis is divided into two different sections, composed of a content analysis on Karnataka's state water policy to understand the ability to access for its citizens. The concluding section of this part of the analysis focuses on exclusion of access to water for non-notified informal settlement by

using a content analysis of publicized secondary academic research on the inclusion of access to water.

Key issues: occupational gap, push-pull factors, thresholds of decision making to migrate

The analysis of geographical uneven develop is divided into 3 sections. The first section, uses secondary data is used to highlight the gap in Bangalores work force by using a discourse analysis on the type of employee in Bangalore. In the second section of the analysis is continued by investigating rural to urban migration in Bangalore. In the first part of analyzing rural to urban migration secondary data is used and applied as a thematic analysis of two pictures charts. Each pie chart represents the reason for rural to urban migration. Data from this pie chart is used to support the concepts of push-pull theory and threshold approaches of migration. To support the reasoning for rural to urban migration in both pie charts, art is used via content analysis to highlight the difficulties of migration. The first is a visual aid in the form of art which depicts the struggles of migration in two directions, rural to urban, and urban to rural. This piece of art is used as an expression of migration in Indian, and thus the analysis focuses on the what the art is expressing. The second is a poem that is publicized via academic scholar provides a creative understanding of the systemic issues of migration. This is also used as a form of expression; however, it is analyzed to give a clarification on the wider systemic issues that are attached to the phenomenon of migration.

Ejipura eviction

Chapter 6, and specifically section 6.3, introduces the case of the Ejipura eviction. This section is divided into two parts. The first part uses secondary data via a discourse analysis on the overarching issue of the Ejipura eviction and how it has left many people, particularly Dalits, to live in informal settlements outside the eviction site. The second part is a combination of secondary data using the qualitative software Atlas.ti as a thematic approach to understanding key variables of geographic uneven development. First, a web of words was searched and gathered from a group of secondary data, such as access, water, pavements, slums, eviction, Dalits, inequality, basic services. These words are presented to show the frequency that they were used within the secondary data that was collected. From the web of words three themes were created to further understand then definition of geographic uneven development against the Ejipura eviction. The application of the definition of geographic uneven development is presented in three themes: of a) distribution of wealth b) distribution of resources, and c) distribution of people, all of which help to understand the context of the Ejipura eviction.

Part three of the analysis is split into five parts which aims to humanize the impact of non-notified Ejipura evictee's by using the sustainability framework. The first section focuses on the transforming prosses, in this case policy, that influence shocks that may be experienced by non-notified Ejipura evictees. This section uses secondary data as a discourse analysis to investigate how policy can impact the lives of non-notified Ejipura evictees. The second section researches shocks that may arise within the vulnerability context. In this part of the analysis a video of a doctor providing medical is used as secondary data for a discourse analysis to examine the health shocks that are experienced by non-notified Ejipura evictees. The third section analyzes the impact on assets, such as physical and social capital of non-notified Ejipura evictees to access water. In the form of secondary data, a discourse analysis on testimonies is used to understand their ability to access water in regards to physical and social capital. The fourth section sets the foundation for a coping strategy when not having access to water, this coping strategy is then applied to the following section. The final section explores the question of reduced livelihoods pertaining to the livelihood outcomes of non-notified Ejipura evictees. Secondary data is gathered and analyzed with a thematic approach that is displayed in bar graphs to show how basic services are impacted, and thereafter the lack of participation in health care serves.

3.4 Limitations

At the start, but also throughout the process of writing my thesis, there have been various limitations in the ability to collect data. Because of the Covid-19 pandemic there were, unfortunately, strong restrictions in the ability to conduct fieldwork. Adapting to the realities of Covid-19 the research plan was adapted to fit the design of this thesis. In the original research design, I was going to conduct a survey of populations that experienced a lack of access to clean water. The data collected from the survey would provide an understanding of the realities that are faced when there is a lack of access to clean water. Trying to conduct this research from a distance meant that the relationship between the research and the participants would be limited, causing complications in the data collection process.

Persevering the topic by redesigning my research plan that new approach consisted of understanding a lack of access to water and the impact that it has on the sustainable livelihoods of non-notified informal settlements. Sourcing information under the conditions of the Covid-19 pandemic it was essential to find secondary data that was applicable to the argumentation of

this thesis. Due to the pressing issue of a lack of access to water it was possible to find sufficient secondary sources that supported the ability to access water, how prevalent the phenomenon is in Bangalore, and the long-term effects it has populations that are living in non-notified informal settlements. In addition, the transcribed interviews and testimonies was data that directly commented on the issues that are researched in the analysis. The aim of using secondary sources as the use for the data collected is to further support the argumentation of social-spatial injustice as the reason for a lack of access to water and the effects that it ultimately has on sustainable livelihoods of non-notified informal settlements.

4. A case study of Bangalore and a sub-case of the Ejipura eviction

4.1 The population growth rate and demographics of Bangalore

As this thesis centers itself on a population of Bangalore that is affected from the lack of access to water, I will take the time to explain the demographics and population growth of Bangalore to give a comprehensive understanding of Bangalore's population. The world population review states that the current population of Bangalore is more than 12 million people (World Population Review, 2021). Since the 1980's there has been a constant growth rate of 3% every ten years in Bangalore. For example, the population growth of Bangalore shows a 5.95% increase in 1980, 3.54% increase in 1990, 3.26% increase in 2000, 4.10% increase in 2010, and a 3.74% increase in 2020 (World Population Review, 2021). From now until the year 2035 it is projected that the average population growth rate of Bangalore will be at 2.58% (World Population Review, 2021). The constant increase in Bangalore's population has led to stress on its spatial environment. The population density of Bangalore has increased 47% in just ten years (World Population Review, 2021). In 2011 there were 4,378 people per square kilometer, up from 2,985 ten years before (World Population Review, 2021).

Figure 3: Infographic of Bangalore's demographics and population growth
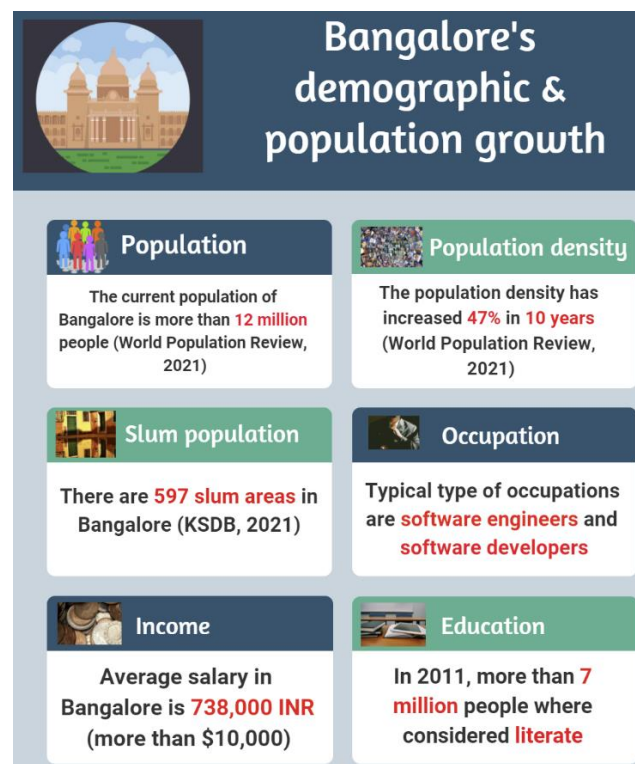
Like many other megacities in India, Bangalore is home to millions of people that live and work there. To gain a closer insight this section will explore the different demographic factors of Bangalores population. The common occupations and companies in Bangalore share similar characteristics that complement each other. In Bangalore the typical occupation consists of software engineers and software developers (PayScale, 2021). The salaries for these jobs range from 255,000 INR (more than 3,000 USD) to 2 million INR (more than 27,000 USD) (PayScale, 2021). Meanwhile the average salary in Bangalore is 738,000 INR (more than 10,000 USD) (PayScale, 2021). Even though these figures may be considerably less for occupations in the tech industry compared to salaries in other countries, the level of income from these occupations provides the ability for a person to live a sustainable life. In 2011 when the population was more than eight million people there were 7.51 million people that are considered literate (Knoema, 2021). Of the literate population more than three million females and more than four million males were considered as illiterate in the year of 2011 (Knoema, 2021). The information that is gathered in this section of the analysis paints a picture of a population that is continuing to rise equipped with educational skills and salaries that derived from a tech-based industry.

4.2 Multinational corporations and educational institutions of Bangalore

Bangalore is the wealthiest city in Karnataka and is on track to being one of the 10 fastest growing cities in the world (Madur, 2019). A combination of more than 100 multinational IT firms in Bangalore along with top notch technological universities continue to drive massive investment into Bangalore's urban planning (Rains, 2018). In map 1 below, there are blue and green pinpoints - blue representing educational institutions and green representing multinational corporations. We can see that two fundamental resources, jobs and education, are centered in the metropolitan area of Bangalore. The decision to better one's life by means of an education or career is via Bangalore. Therefore, for anyone to have access to these opportunities requires one to live in close proximity to Bangalore. For this reason, Bangalore is experiencing the classic symptoms of globalization, that being increased urbanization, increase in population, and an influx of migrants from short and far distances.

Map 1: Metropolitan area of Bangalore displaying multinational corporations and educational institutions
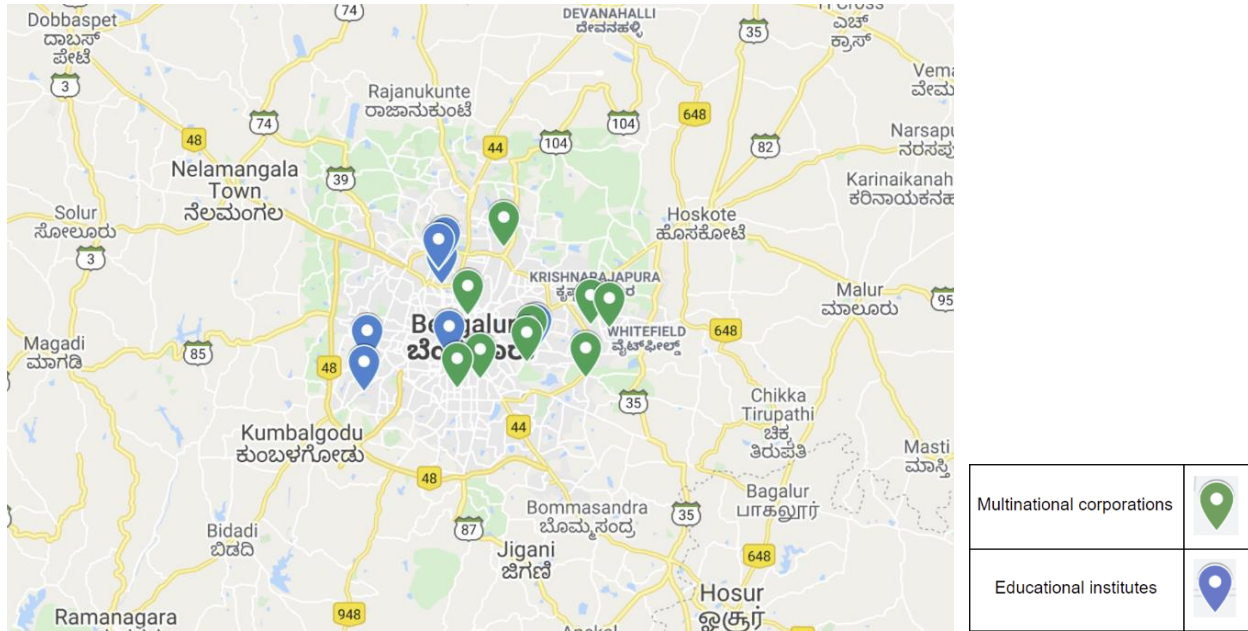
4.3 Silicon Valley of the east

The quick rise of Bangalores tech-industry begins with the type of education for Indian's. Indian's historically have had a strong educational background in the area of science, technology, engineering, and mathematics (STEM) (Vicenews, 2020). By the late 80's companies such as Microsoft and IBM became a magnet for Indians with STEM skills to work in the United States (Vicenews, 2020). The manifestation of these companies, along with the talent that operated these companies, resulted in the birth of the telecommunications sector. Telecommunications became a tool for companies to expand their operations offshore in countries such as India (Vicenew, 2020). This led to a growth in the labor market, as many Indians began working as customer service agents in India via the means of telecommunications. By the year 2000 there was a specific problem in the tech sector that led to the unique growth of Bangalore. Many software programs were unable to communicate the two zeros at the end of 2000 into their programming language (Vicenews, 2020). Software companies in India had the ability to offer a solution to this problem. Investments skyrocketed these companies leading to Bangalore earning the title as the 'Silicon of the East' (Vicenews,

2020). As these companies began to grow, more innovation and knowledge accompanied the growth in the tech sector.

Bangalores 'smart city' approach

By 2015, India accelerated their vision of the country by introducing the 'Smart Cities Mission' (SCM). The vision of the Smart Cities Mission "is to drive economic growth and improve the quality of life of people by enabling local area development and harnessing technology, especially technology that leads to Smart outcomes'' (Government of India, 2021). The idea consists of 21 initiatives, such as data driven cities, climate smart cities and cycle-friendly cities (Government of India, 2021). The 'Cities Investments to Innovate Integrate and Sustain' is an initiative of 15 projects aimed to improve areas such as low-income settlements (Government of India, 2021). However, in reports from the media the mission has received some backlash in regards to its assistance for city dwellers. "Only if we had focused more on basic services like healthcare, education, housing, and transportation - the Smart Cities would have been better equipped to deal with a pandemic-like crisis" (The Indian Express, 2021). Bangalore, and many other cities in India are experiencing exponential growth in terms of their urban planning, influx of population, and development in various sectors. Missions like SCM are nurturing the development of these cities that are rapidly expanding.

4.4 The sub-case of the Ejipura eviction

The sprawl of high-rise buildings, shopping malls, transportations networks are all signs of 'urbanization' in Bangalore. In the complex interwoven socio-spatial patterns of Bangalore the sub-case of the Ejipura eviction exhibits rights to the city for its newcomers. It depicts how the physical geography of an environment produces an unequal distribution of people, resources, and wealth. The Ejipura eviction helps to signify the complexities in Bangalore for populations that moved to Bangalore. The story begins just before the 1980's when many low-income rural labor migrants settled on the outskirts of Bangalore (Martinez et al, 2021). By the mid 1980's the BBMP built low-income housing for the rural labor migrants living outside of Bangalore (Martinez et al, 2021). The low-income housing was poorly constructed, and thus lacked basic necessities, therefore owners decided to sub-let their flats or sell them via power of attorney (Martinez et al, 2021). "A survey conducted in 2003 found that … the majority of sub-tenants were Dalits and other marginalized minorities" (Martinez et al, 2021, p.301). Between the years 2004 and 2007 three blocks of the low-income housing collapsed, as a consequence the Dalit

sub-tenants were moved by the BBMP into an 'Economic weak zone' (EWZ) known as Ejipura (Martinez et al, 2021). Without consultation with the Ejipura residents a contract was awarded by the BBMP to Mavericks Holdings investment, a development company that was given the permission to build a shopping mall in the location of Ejipura (Martinez et al, 2021). "Under the terms of the deal, 50% of the land should be used to construct flats … and the other 50% [was] free for commercial development, upon which the private developer proposed to build a shopping mall (Martinez et al, 2021, p.302). By 2011 legal debate ensued. The final legal judgment decided it was *legal* to bulldoze Ejipura to build the shopping mall, that is because the current residents (Dalits) were 'encroachers, non-original allotees' (Martinez et al, 2021, p.303). In January of 2013, 1,512 homes were bulldozed, consisting of 1,200 families (Martinez et al, 2021). Furthermore, evicted families were given false promises. They were assured alternative housing that was not completed until 2017 (Martinez et al, 2021). From 2013 to 2017 families had nowhere to live. Some families moved to informal settlements, and some families lived in drain pipes, and some on the side of the street next to where they were evicted. (Martinez et al, 2021). Moving to a city that they thought would better their life has only set them back to the point where they are left with no form of legal protection to access water. In a rapidly urbanizing city poor populations, like the Dalits living in Ejipura, are at risk of being able to access water because of the circumstances they are living in. Consequences for people in non-notified informal settlements greatly affect their livelihoods, in ways of increased vulnerability, lack of well-being, unsustainable use of a natural resources, and a lack of income, all of which affect a person's sustainable livelihood.

4.5 Informal settlements, and a decrease of informal settlements in India

The harsh living environments of informal settlements that the Ejipura evictees have to survive in everyday is a common living environment for many informal settlements in India. Since 1947 there is two prominent reasons for a rise in informal settlements in India, which are the Partition of India from the United Kingdom and the industrial revolution after its independence (Bandyopadhyay et al, 1981). Within Bangalore there are 597 informal settlements which account for nearly a quarter of the percentage for Bangalore's populations (KSDB, 2021). The atmosphere of informal settlements is often over-crowded that lack a sanitary environment. Informal settlements are widely spread from habitations like makeshift tents in various locations, to multistoried concrete buildings that are not connected to basic services, like water (Krishna, 2014). Even though there are 597 informal settlements in India, data shows that the number of informal settlements has been decreasing with an increase after the year 2014. In Figure 3 below, we can see that the share of the urban population living in

informal settlements in the year 1990 was at 54.9% and in 2018 it was at 35.2%, resulting in an absolute decrease of 19.7% (Ritchie et al, 2018). Although this may seem like a fast decrease other countries have experienced double the rate within the 18 years, from 1990 - 2018. For example, Bangladesh's share of the urban population living in informal settlements was at 87.3% in 1990, whereas in 2018 it was at 47.2%, thus giving Senegal a 40.1% decrease in the slum population (Ritchie et al, 2018). Overall, that is a good sign that there is a decrease in informal settlement in India, there are still many, some of which lack access to water.

Figure 4: Share of urban population living in slums, 1990 to 2018 (Ritchie et al, 2018)
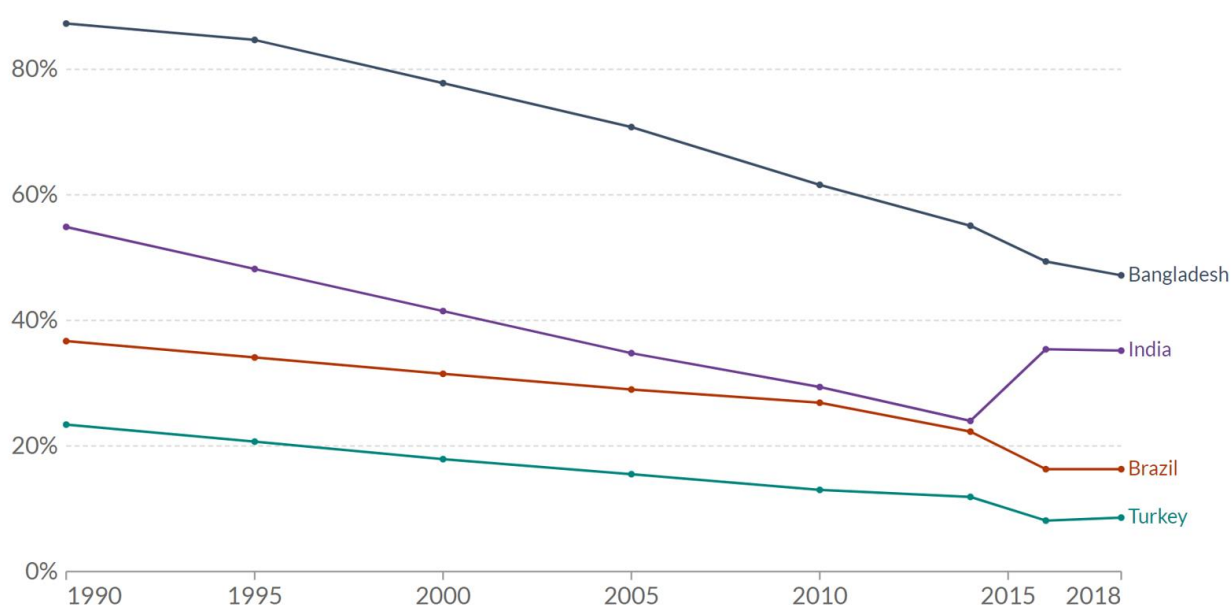
An opening to the empirical analysis on the effects of socio-spatial injustice on access to water and the impact on livelihoods of non-notified informal settlements of Bangalore

One would think that a person would not have to fight for a better life in a city that aspires to be a role model in the global arena for other cities in the developing world. However, the remaining undertone in Bangalore of the previously abolished caste system has made it difficult for lower caste, like the Dalits, to access benefits of the city that can enable them to access water (Narayana, 2012). Narayana (2012) says that "caste segregation is very much alive…builders openly advertise luxury apartments [by writing] 'exclusively for vegetarians' in the newspapers, which is a subtle [way] of saying it is only for the Dwija caste [thus] excluding Shudras and Dalits" (Narayana, 2012, pg.61). Dalit activist, like Isaac Arul Selva, have supported how it is difficult to find housing by sharing that they have to live next to graveyards, big drains, and railways (Narayana, 2012). The Dalits that are living in the informal settlements of Bangalore have faced the conditions of poverty for generations thus limiting their ability to access vital resources to their livelihoods, such as water. To understand the socio-spatial injustice that Dalits are experiencing and the impact on livelihoods of non-notified informal settlements the empirical investigation of this chapter will unfold into three parts. I direct the first portion of my analysis on social injustice which investigates policy to water on the international level, national level in India, and the local level in Bangalore, Karnataka, India. Following, my analysis will take a spatial approach that builds off the concept of geographical uneven development by applying the sub-case of the Ejipura eviction in Bangalore. I will conclude the analysis by researching the opportunity for a sustainable livelihood of Ejipura evictees that are living in non-notified informal settlements without access to water.

5. Social injustice: multi-level policy analysis of inclusion and exclusion to water

My thesis is here to join the coalition of voices from activists, actors, and experts for the voiceless, to make the claim that there is a lack of access to water; and no more will it be one day, but day one in the fight to provide access to water for all. An investigation into the accessibility of water can have a multitude of approaches such as an investigation of climate change to infrastructure. In my endeavor of analyzing access to water in India, I will begin my investigation on the effects of social injustice by means of exclusion to the accessibility of water. A multi-level policy analysis will bring to light inclusion and exclusion of access to water. In the first part of this section, I will direct my attention to understanding water policy on the international level. I will specifically look at the United Nations and their involvement with water. In this phase of the research, I study the initiatives of the United Nations (UN) Sustainable Development Goals (SDG). Particularly I will give my attention to SDG 6 and target 6.1. I will conclude this phase by exploring the UN resolution 64/292 to give insight to key actors that stand in the fight for accessibility of water for all. Narrowing my research, I will direct my attention towards water policy on the national level in India. At this stage of my analysis, I will clarify the role of water in a person's right to life, by highlighting the application of article 21 from India's constitution in three prominent court cases. The three court cases will be applied to Sen's entitlement framework. Finally, I will engage into what the policy on water is in the state of Karnataka, specifically for informal settlements in Bangalore. In this initial part of the research, I hope to bring front row examples of inclusion and exclusion of access to water in India.

5.1 United Nations policy analysis on rights to water

Millennium Development goals to Sustainable Development goals

Since the early years of the 21st century the United Nations (UN) has taken initiative on reducing social issues to improve worldwide sustainability. The endeavor began at the creation of the Millennium Development Goals (MDG's), which eventually evolved into what is now the Sustainable Development Goals (SDG's). The MDG's were a set of eight goals established by the UN at the start of the 21st century to reduce issues such as poverty, hunger, and disease by 2015 (Sachs, 2012). Following the 15 years of the MDG's, policy makers and civil society saw a need to continue the progress of reducing societal problems, as well as to prevent rising environmental issues such as climate change. The SDGs were then introduced at a 2012 UN conference on sustainable development in Rio de Janeiro by the UN Secretary-General Ban Ki-

Moon to continue the progress of the MDG's (Sachs, 2012). The SDG's approach to continuing the progress of the MDG's aims at improving the level of worldwide sustainability by focusing on issues in areas of economic development, environmental sustainability and social inclusion (Sachs, 2012). The 17 SDG's act independently to improve worldwide sustainability, however are interlinked by the impact one goal has on another. The Stockholm Resilience Center illustrates the SDGs as a 'wedding cake', seen in Figure 5 below, to show how goals can impact one-another. The 'wedding cake' is divided into three areas: environment, society, and economy, each theme containing their relevant goals. The foundation of the 'wedding cake' is the 'biosphere' theme, acting as the foundation for the remaining two themes - society and economy (Obrecht et al, 2021). Within the foundation of the 'wedding cake' lies the most relevant SDG to this thesis, SDG 6 - Clean water and sanitation. It suggests that progress in 'biodiversity conservation along river catchments is a cost-effective nature-based solution' that will improve the progress of 'availability and sustainable management of water and sanitation' (Obrecht et al, 202, pg.6). As the SDG's are presented for global achievements, however missing a geographical precision for the reason that certain geopolitics are attached to access resources in desired places. Taking a point of departure this section begins the analysis of the stance the United Nations is taking on their right to access clean water through the lens of the SDG 6. To support the UN's stance the section will analyze the target 6.1 which has a critical relevance to what it means for a person to have the right to access clean water.

Figure 5: The SDG 'Wedding cake' a biosphere as the foundation for economies and societies (Obrecht et al, 2021, p.3)

Sustainable Development Goal 6: Clean water and sanitation

The sixth Sustainable Development Goal of the UN is to ensure availability and sustainable management of water and sanitation for all (UN, 2012). Now, more than ever, the availability of water is critical to protecting each person from contracting the Coronavirus. Some of the most effective methods of prevention from Covid-19 require water, such as alcohol-based sanitation liquids, hand washing facilities, and health care centers. The UN has stated that '3 billion people lack basic hand washing facilities, meanwhile two in five health care facilities do not have soap, water, or alcohol-based hand rub (UN, 2012). How does the largest international organization in the world facilitate a framework that ensures everyone has access to clean water and sanitation to prevent people from contracting the Coronavirus and/or any other water related health issue? To do so, the UN has created targets that focus on the different dimensions of each goal. SDG 6 has eight targets that aim at ensuring availability of water and sanitation for all. All of the targets are important for the needs of people to access clean water, however target 6.1 will be analyzed because of the targets aims at inclusion of access to water.

Target 6.1: Safe, affordable, universal and equitable

Safe water

Target 6.1 is set to achieve, by 2030, universal and equitable access to safe and affordable drinking water for all (UN, 2012). This section will analyze what safe, affordable, universal and equitable access to water means. In a media brief by the UN (2010) safe water is when it is "free from micro-organisms, chemical substances and radiological hazards" (Ki-moon et al, 2010, p.3 - 6). At the height of the Coronavirus pandemic in 2020 the UN-Habitat published a document that acknowledges the importance of access to safe water among informal settlements by specifying how safe water can be used via supply, sanitation, and hygiene (WASH) services. The publication by UN-Habitat calls on politicians and civil servants to address this issue as their main priority and also offers a means which can be applied to stop, and reduce the spread of the Coronavirus. A piece of advice given by UN-Habitat is to 'maximize access to safe drinking water' by facilitating its access and treatment (UN-Habitat, 2020, p.1). A webinar of what international development practitioners is saying about the need for access to safe water helps us to understand its urgency and the steps that are being taken to reach target 6.1. In
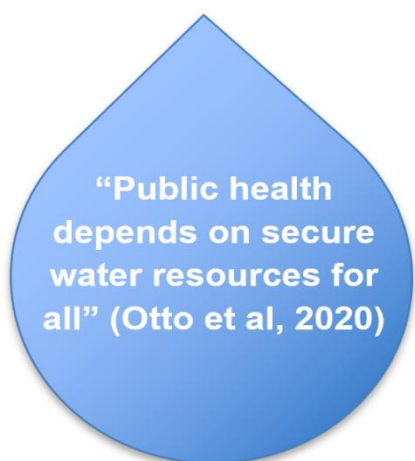
"Public health depends on secure water resources for all" (Otto et al, 2020)

March of 2021 a webinar was conducted to recognize 'World water day' by having a discussion on the topic of 'Water security, sanitation, and hygiene in a world combatting Covid'. Gloria Steele, was an attendee to the webinar representing the United States Agency for International Development (USAID) as an acting administrator. She brings insight into the importance for the supply of safe water during the Corona pandemic, hardship families are facing, and what development practitioners are doing to reach target 6.1. Steele (2021) explains that the supply of safe water has worsened during the Coronavirus pandemic because utility companies in middle to low-income countries are facing 'severe financial strain due to economic disruptions arriving from the pandemic' (Steele, 2021). The World Resources Institute (2020) also shines light on the lack of water for poor populations by saying that "public health depends on secure water resources for all. Governments must take steps to not only expand water access now to control COVID-19, but to create more resilient communities by addressing the root problems of water insecurity (Otto et al, 2020, p.1). People living in informal settlements that do not have direct access to water have to spend time searching for safe water and/or negotiating access with other communities, all of which take essential time away from being with their family. During the webinar a question was posed asking about the relevance of WASH facilities amid the development and distribution of vaccinations. Steele (2021) has responded by saying that safe water is still very necessary to reducing the transmission of viruses, and is important for people's health. Therefore, with the development and distribution of a vaccine, access to safe water is still important for people's health, more so for people that are living in informal settlements that are overcrowded and unsanitary.

Besides the importance of access to safe water being necessary for the fight against Covid, it is also very necessary for to prevent water-borne illnesses. There are a wide range of experiences that come with a lack of access to safe water in this portion of the analysis I will focus on a common water related illness in India, diarrheal disease. When there is a lack of access to safe water, it is common that people source water from unsanitary conditions, such as surface water. Consumption of unsanitary comes at the price on contracting water-borne illness for all age groups. In Figure 6 below, the graph shows the number of child deaths of diarrheal diseases, a common symptom of water insecurity, from 1990 until 2018. In 2018 unsafe water was responsible for more than 80,000 child deaths in India (Bernadeta et al, 2018). In Figure 7 below, we can see that unsafe drinking water is responsible for more than 300,000 deaths of people that are more than 70 years of age (Bernadeta et al, 2018). In addition, necessities that involve the need for safe water such as sanitation and handwashing facilities are responsible for more than 100,000 deaths in India (Bernadeta et al, 2018). In this section of the analysis correlated variables such as income inequality and the risk that comes with a lack of access to

water shows the impact that comes from unaffordable water and thus highlights the importance of target 6.1 to make water affordable.

Figure 6: Number of child deaths from diarrheal diseases by risk factor (Bernadeta et al, 2018)
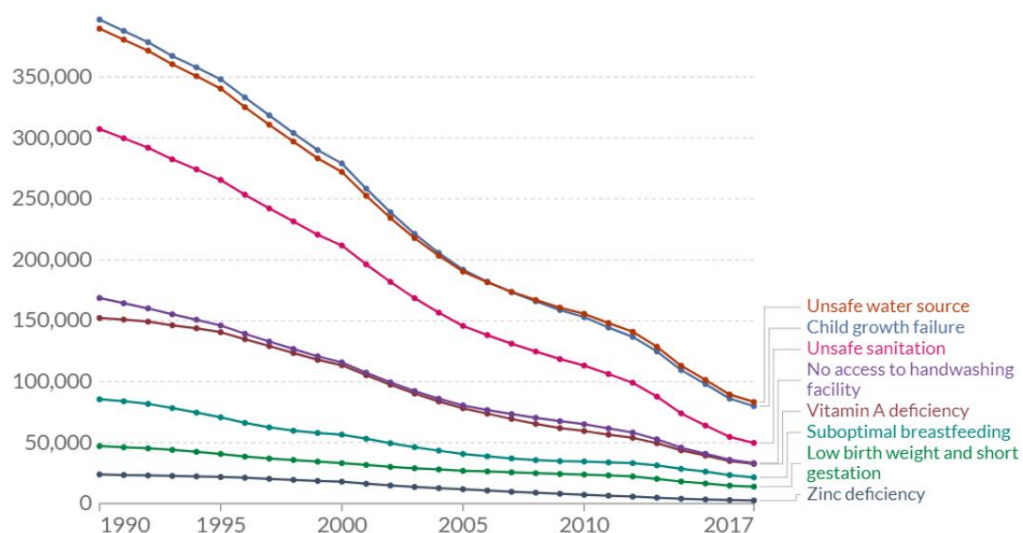
Figure 7: Death from diarrheal diseases of people 70 and older by risk factor, India, 1990 to 2018 (Bernadeta et al., 2018)
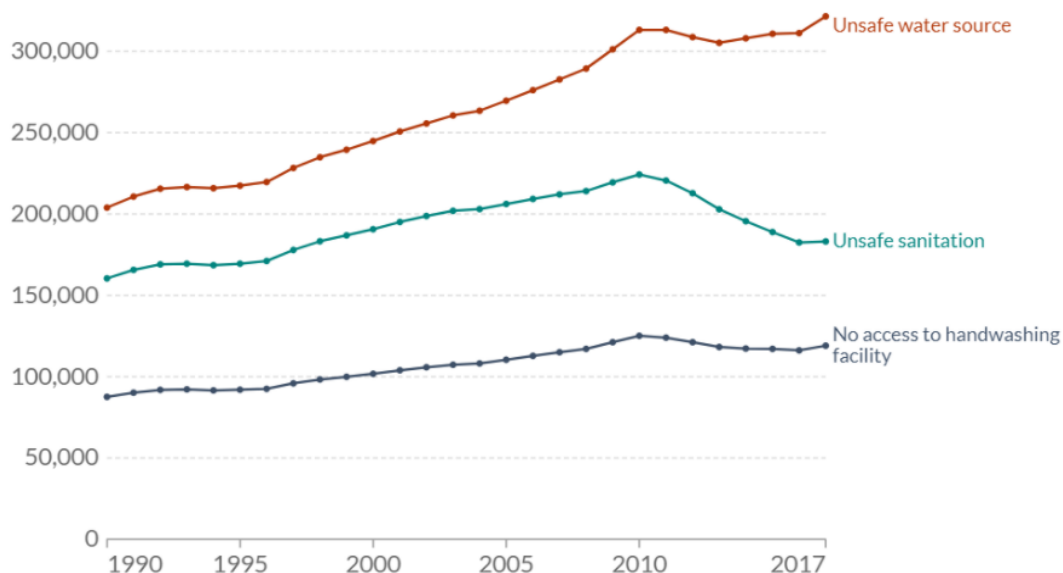
Affordable water

In this section I will analyze the importance of affordable safe water by analyzing key variables that dictate the affordability of safe water and the experiences that are faced when there is a lack of access to safe water. My analysis consists of variables such as income inequality and the health risk endured when lacking access to affordable safe water. Target 6.1 states that for safe water to be affordable it should cost no more than '5% of a household's income'. Income inequality is a point of departure to put into scope the various income levels that exist in a region. In Figure 8 below, the graph represents the level of income inequality, using the Gini coefficient in India for two separate years, 1990 and 2015. The further the bubble is to the right on the x-axis the higher the level of income inequality is for the year 1990. The higher the bubble is on the y-axis, the higher the level of income inequality is for the year 2015. From the graph we can observe that the level of income inequality in 1990 was at 29.7% and in 2015 it was 35.15%, rising by 5.45% within 15 years (Hasell et al, 2018). Because of an unequal share of income, populations experience a low level of income (Piketty, 2018). Low-income levels complicate the ability to afford access to safe water. How does a low level of income relate to what is considered 'affordable' access to water in Target 6.1? Table 1 below, displays the World Health Organization's (WHO) recommended amount of water per person a day versus the cost of 1 liter of water in Bangalore, then compares the cost to the 'affordable' percentage for a household specified in target 6.1. The recommended amount of water per day to meet a person's basic needs is 50 liters of water (Ki-moon et al., 2010). The price of water per liter in Bangalore is .70 INR (0.0091 USD) (Vishwanath, 2014). The monthly median household income of slum dwellers in Bangalore is 3,000 INR (Project, 2019). From Table 1 we can conclude for any slum household in Bangalore, the monthly cost of water alone already exceeds 5% of their monthly income.

Figure 8: Income inequality in 1990 vs 2015. A higher Gini coefficient represents higher inequality (Hasell et al, 2018)
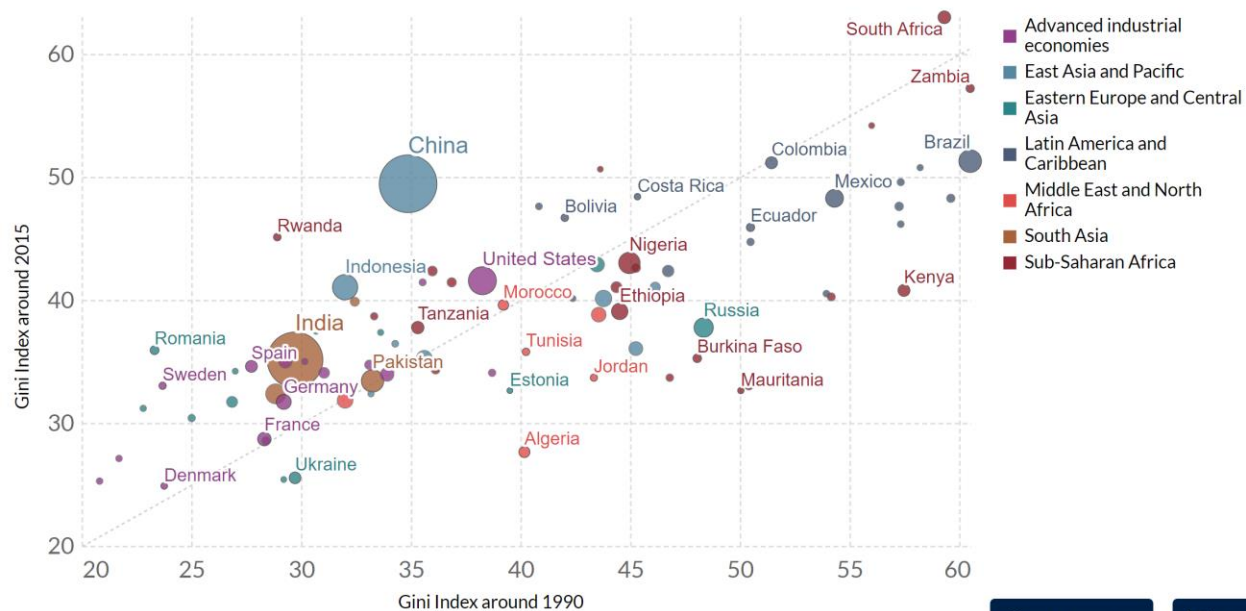
Table 1: Cost of water per month per person in Bangalore in 2017 (Project, 2019)

50 L of water per day for 1 person	Cost of water per litre = 0.70 IND	< 5% (150.00 INR) of the monthly median income from a household in Bangalore's urban slum (3,000 INR)
Monthly avg (30 days) = 1,500 L for 1 person	1,050.00 INR	1,050.00 INR > 150.00 INR (5%)
Monthly avg (30 days) = 3,000 L for 2 people	2,100.00 INR	2,100.00 INR > 150.00 INR (5%)
Monthly avg (30 days) = 4,500 L for 3 people	3,150.00 INR	3,150.00 INR > 150.00 INR (5%)
Monthly avg (30 days) = 6,000 L for 4 people	4,200.00 INR	4,200.00 INR > 150.00 INR (5%)
Monthly avg (30 days) = 7,500 L for 5 people (Median slum household size in Bangalore)	**5,250.00 INR**	**5,250.00 INR > 150.00 INR (5%)**
Monthly avg (30 days) = 9,000 L for 6 people	6,300.00 INR	6,300.00 INR > 150.00 INR (5%)

Universal and equitable

An emphasis on universal and equitable access to water ensures that there is improved access to safe and affordable water. A definition by the United Nations Economic Commission for Europe (UNECE) provides an understanding of universal and equitable access to water, which states "[universal] and equitable access to water, adequate in terms both of quantity and quality, should be provided for all members of the population, especially those who suffer a disadvantage or social exclusion" (UNECE, 2021). I want to focus that *all member of the*

population should be included in the accessibility to water. An interview by the Journal of International Affairs with Maude Barlow, a long-time water rights activist, helps to connect the issues of universal and equitable access to water with what academics and experts are saying. A list of all the questions from the interview are applied in the appendix of this thesis. The first question posed to Maude Barlow ask, *could you tell us more about your travels? How have you seen water scarcity impact the daily lives of people? Have you seen women impacted differently?* Spearheading the issue of universal and equitable access to water Maude Barlow responds by stating that there are two groups of people that suffer from water scarcity all over the world – indigenous populations and women (Barlow et al, 2008). The role of women in regards to accessibility to water opens the eye to how this is a wider issue, however this wider issue can still be seen in India today. A study on Dalit women and water identifies the multiplicity of issues and challenges faces by Dalit women in access water (Dutta et al, 2018). A lack of access to water often means that Dalit communities must source water from other communities which are often dominate castes (Dutta et al, 2018). Patriarchal tendencies shift Dalit households to depend on females to source water if there is a lack of access to water. The study on Dalit women and water has found that they have experienced difficulty in sourcing water from other locations because they are "subjected to humiliation such as verbal abuse, physical assault, sexual assault … because of their caste identity (Dutta et al, 2918, pg. 72). The lack of equitable access to water for Dalit communities is further backed by Goldy M George, an expert on Dalit rights, who says that access to water for Dalits comes only at the goodwill of the dominant caste (Purohit, 1970). In this example of issues that question the universal and equitable access to water, indigenous populations and women are the wider scope of victims, however this claim is also relatable to the Dalit community, especially Dalit women.

United Nations Resolution 64/292: clean water and sanitation

Since August 2010 people without access to safe and affordable water can lean on UN resolution 64/292 to defend their right to water. Resolution 64/292 recognizes "the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights" (UN General Assembly, 2010, p.2). Taking action, the UN calls on states and international organizations to 'provide financial resources, capacity-building and technology transfer' to ensure that water is 'safe, clean, accessible, and affordable' (UN General Assembly, 2010). Out of the 192 'Total voting membership' resolution 64/292 received 122 'Yes' votes (United Nations, 2010). Of importance to this thesis is India, one of the 122 countries that voted 'Yes' for resolution 64/292. Who is the representative that voted 'Yes' and what are the

political values they side with in regards to water as a right? Hardeep Singh Puri was the permanent representative of India in 2010 to vote 'Yes' for resolution 64/292. Currently, minister Hardeep Singh Puri is affiliated with the right wing Bharatiya Janata Party (BJP) (Indian Peoples Party), which is the current ruling party of India (Bureau, 2019). The philosophy of the BJP is 'integral humanism', which is composed of a set of concepts, one of them being 'sarvodaya' which means 'progress of all' (Hansen, 1999). This particular perspective can be viewed today by social media statements on topics of access to water by minister Hardeep Singh Puri. In a twitter post on World Water Day of 2019 Minister Hardeep Singh Puri stated that "water has sustained civilizations for ages. Now is the time for civilizations to come together to sustain clean water" (Puri, 2019). This clearly shows his stance on access to clean water as an effort of a collective society. Over one year later he announced on twitter that "Clean potable water now flows from every tap in the holy & culturally rich city of Puri. In a unique first in the country, Puri now has 100% water tap connections with 24x7 drinking water supply" (Puri, 2021). It is duly noted that India's civil servants, such as Hardeep Singh Puri, are taking action, and progress is being made to ensure that there is access to water. How is the right to water, then, being perceived on the national level in India? What judgment has been made amid the debate of a person's right to water? In the next section of this thesis I will analyze the answers to both of these questions in detail.

5.2 India's national position on rights to water

The development of India's National Water Policy (NWP)

Within the 1980's Indian civil servants came together to create a National Water Policy (NWP) that would improve the use of India's natural water sources. In March of 1982 the National Development Council ratified the creation of the National Water Resources Council (NWRC) (CWC, 2021). The NWRC is composed of ministers from different sectors such as agriculture, planning, and works & housing (CWC, 2021). The ministers are responsible for overseeing the development of India's national water policies. An important responsibility of theirs is to develop a fair distribution of water. This is seen in a statement of their duties, "To advise practices and procedures, administrative arrangements and regulations for the fair distribution and utilization of water resources by different beneficiaries keeping in view optimum development and the maximum benefits to the people'' (CWC, 2021, p.37). By 1987 the NWRC adopted the first National Water Policy (NWP). The goal of the NWP is to ensure that water is used for basic human needs. This is confirmed in a statement which reads "water is a prime natural resource, a basic human need and a precious national asset. Planning and development

of water resources needs to be governed by national perspective" (CWC, 2021, p. 38). Taking this position supports the inclusion of water, that means it is fairly distributed no matter the identity of the group. In addition, the policy suggests that "the water resources available to the country should be brought within the category of utilizable resources to the maximum possible extent" (CWC, 2021, p.38). This entails that water is considered as a utility, thus leaving the responsibility for civil servants to provide the means for city planners and utility providers to ensure access to water. The policy also recommends that the distribution of water is prioritized into categories such as drinking water, irrigation, hydro-power, navigation, and industrial uses (CWC, 2021). To keep up with the challenges that India is facing such as climate change, rapid economic growth and involvement with the international community, the NRWC reviewed the National Water Policy (NWP) in 2012. A central concern amid their review was the issue of "access to safe water for drinking and other domestic needs" (CWC, 2021, p.42). A key principle implies that "safe water for drinking and sanitation should be considered as pre-emptive needs, followed by high priority allocation for other basic domestic needs" (CWC, 2021, p.43). In terms of the supply of water the National Water Policy specifies a need to clear the disparities of water supply in urban and rural areas (CWC, 2021). This is an action that will support the inclusion of water for demographic groups in India that are experiencing a lack of access to water. The evolution of India's national water policy has continued to improve the ability of its citizens to access it. What are the judgments when it comes to a person's right to access water which has been made readily available by India's National Water Policy?

The legal protection of the right to water in India

India's constitution does not explicitly state a person's right to access sufficient, safe, accessible, and affordable water (Thara, 2017). However, in several compelling court cases the right to water has been protected in India's highest courts. Three cases in India's highest courts have protected the right to water via article 21 of India's constitution. Article 21 of India's constitution states that 'No person shall be deprived of his life or personal liberty except according to procedure established by law' (Jain, 2015). In this section of the analysis each case is argued by using article 21, which will be applied to Sen's (1981) entitlement approach. The similarities between all three cases are that the right to life is argued over water that is a natural resource which is polluted or contaminated. However, the cases differ in their location. The second court case particularly is concentrated on the capitol city of India, New Delhi. In the differentiation of this case, case number 2, is different because it continues to allow the operation of a company that has polluted water because the company is beneficially to the production of clean water in India. The final decision was to ensure that stronger safety

regulations are in place to ensure that there is another case of polluting nature water sources in New Delhi.

Court case 1: M.C. Mehta vs Union of India & Ors

In the first case we can see the judgment of a right to water when impacted by mining techniques. The Supreme Court of India in March of 2004 made a judgment on the case 'M.C. Mehta vs Union of India & Ors' which highlights how water is applied when arguing the right to life. The court case was a judgment on mining activity that caused environmental degradation on the Delhi-Haryana border (Sabharwal et al, 2004). Evidence from an inspection by the Haryana Pollution Control Board (HPCB) found that "deep mining for extracting silica and sand lumps is causing ecological disaster as these mines lie unclaimed and abandoned" (Sabharwal et al, 2004, pg.1). The verdict of the case decided that there was a depletion of groundwater and that "groundwater is a social asset … [and] that people have the right to use air, water, and earth [when] interpreting Article 21 (Khurana et al, 2009, pg.2). In this particular case we can apply Sen's 'entitlement set' to understand how the population on the Delhi-Haryana border was protected within the judgment of their right to water. Below in Figure 9 is the entitlement set for this particular case. The 'Endowment' in this case is the groundwater that is being impacted by mining. That is because the groundwater in the region is considered as a 'social asset' for the people that are living in the region. The 'E-mapping' proponent in this particular case is two-fold, the legal means of protecting their right to water and social factors. The legal proponent for e-mapping is because under article 21, water is considered a basic human need for the right to life. Therefore, the groundwater for the population on the Delhi-Haryana border is protected because it is considered a basic human need. The consequence of this judgment allows for this specific population to be entitled to groundwater in the Delhi-Haryana border region. We can also use e-mapping to see this issue from a second perspective. The category of 'social factors' represents the *pollution* of groundwater because of mining activities. Pollution is a social factor that prevents the population's entitlement of accessing water in the Delhi-Haryana border region. From this particular case we can observe more than a person's right to groundwater. We can conclude that a vulnerable population because of mining activities are being included in their ability to access water, thus ensuring that there is a fair distribution of groundwater. Without this access many people may turn to unconventional methods of accessing water. In many circumstances that is commonly accompanied with physical strain, time consumption, and poor health. The legal proponent in this particular case, article 21, acts as a shield that prevents the Delhi-Haryana population from being victims of the aforementioned unnecessary consequences.

Figure 9: Sen's 'entitlement set' applied to 'M.C. Mehta vs Union of India & Ors' court case

A) Endowments 'Ownership'	B) Entitlement mapping 'E-Mapping'	C) Entitlement to 'commodity bundles'
Polluted ground water via mining techniques	Legal Social factors	Unpolluted ground water
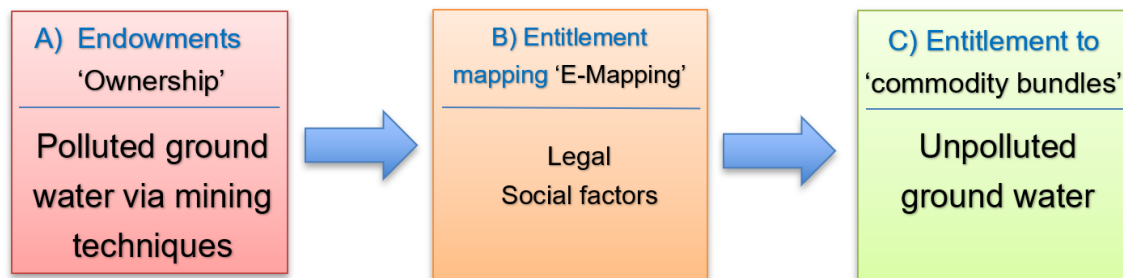
Court case 2: M.C. Mehta vs Union of India

Within the fight for the right to life by means of access to water, further analysis of debates in Indian court rooms will teach us how the right to water is perceived in India. The court case 'M.C. Mehta v. Union of India' is a case that displays the judgment on the right to life when natural water sources are contaminated with hazardous chemicals. In 1985 the company Shriram Food and Fertilizers had an oleum gas leak which killed and impacted the health of several people in New Delhi, India (Lamba, 2018). Outcry from the public called for India's highest courts to make a judgement of how to proceed to protect the rights of Indian citizens. The judgment of the case was based on the question - if companies within hazardous industries should be allowed to operate in the area (Lamba, 2018). In the case Chief Justice Bhagwati decided to continue to allow the operation of hazardous companies as they are also a contribution to the health of the Indian population. For example, he explains that industries which are chemical and hazardous contribute to maintaining drinking water by the supply of chlorine (Lamba, 2018). He added, however it is important to implement precautions for these industries, by stating "[w]e can only hope to reduce the element of hazard or risk to the community by taking all necessary steps for locating such industries in a matter which would pose least risk of danger to the community and maximizing safety requirements in such industries" (Lamba, 2018). In the course of this action and under the protection of article 21, the right to life which includes by means of water, led to the mandated cleaning of water sources such as rivers (Khurana, et al, 2009). In Figure 10 below, is a display of the 'entitlement set' for this case. In this particular case the 'endowment' is the river as a natural water source. The reason for this being an endowment is because the river is a natural 'resource' that supports the right to life for Indian citizens. In terms of e-mapping there are two factors which play a role into

the entitlement to the natural resource of water, that being economic and political. In terms of economics is the operation of industries which deal with hazardous chemicals. The industries can improve or worsen the entitlement to a natural water source in India. Whether the impact is good or bad from these industries will dictate the entitlement an Indian has to a natural water source. On another note, the political factor within e-mapping dictates the quality of water for the Indian population. This is through mandates that require natural water sources to be cleaned. This channel allows the entitlement of water for the Indian population because of its improved quality. In both ways, through the continued safe operation of hazardous industries and mandates that ensure the quality of water, allows for a fair distribution of water as a means for a person's right to life. The snowball effect continues to lessen for the people in this environment as they are protected by the political channels of e-mapping. However, if they are not protected then indeed, they will need to turn to unconventional methods for accessing water, thus leading to health issues, time consumption, and physical strain.

Figure 10: Sen's 'entitlement set' applied to 'M.C. Mehta v. Union of India' court case
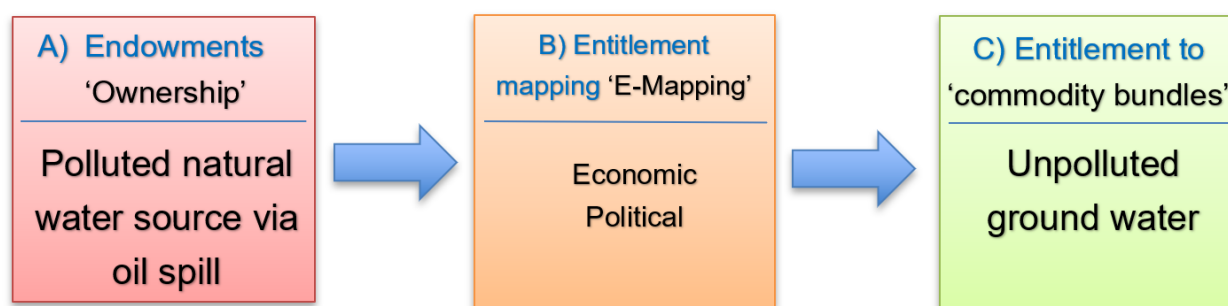
Court case 3: Vellore Citizens' Welfare Forum vs Union of India

A right to life via the means of access to water is further seen in a court case on polluted water because of tanneries. The case was because untreated effluents were released into agricultural fields, waterways and open land, some of which were considered main water sources in the Tamil Nadu region (Kothari, 2016). Evidence proves that the effluents 'spoiled the physio-chemical properties' thus contaminating the groundwater (Kothari, 2016). Judgement of this case proves that when arguing article 21 of India's constitution, an Indian's right to life in the Tamil Nadu region can still be protected. This was done by the supreme court acknowledging the right for an Indian to a clean and healthy environment. This was done by applying the 'precautionary principle' to award compensation for anyone that was harmed from the polluted water (Kothari, 2016). Indeed, compensation is important, however the details of the precautionary principle highlight how a right to water is seen in India's legal framework. The first

principle, and the most applicable to this section is that environmental measures are the responsibility of the state to avoid environmental impact (Kothari, 2016). Furthermore, the court states that "the constitutional and statutory provisions protect a person's right to fresh air, clean water and pollution-free environment" (Kothari, 2016, pg.4). From this statement we can observe that a person's right to clean water is also a variable that is arguable under article 21, the right to life, in India's constitution. Like the previous cases mentioned in this section, Sen's 'entitlement set' can be applied to understand a person's right to water in this particular circumstance. Figure 11 below shows the entitlement set for this particular case. The 'endowment' in this case is the polluted natural water sources, such as rivers in the Tamil Nadu region, which are considered as a social 'resource'. The 'e-mapping' applied to this case is two-fold, that being legal and social factors. Legal is the precautionary principle which ensures that there is a responsibility to prevent damage to the natural environment. Through this channel the population can enjoy their entitlement to a clean natural water source. On the other hand, social factors play a role in the e-mapping of access to clean water sources in the Tamil Nadu region. That is because of environmental damage due to pollution from the tanneries (Kothari, 2016). Via this social factor the entitlement of a clean water source is not enjoyed by the population because of the pollution due to social factors. It is seen here that through legal action that the Tamil Nadu population is included in a fair distribution of water as they are protected via the precautionary principle in India's legal framework.

Figure 11: Sen's 'entitlement set' applied to 'Vellore Citizens' Welfare Forum v. Union of India' court case
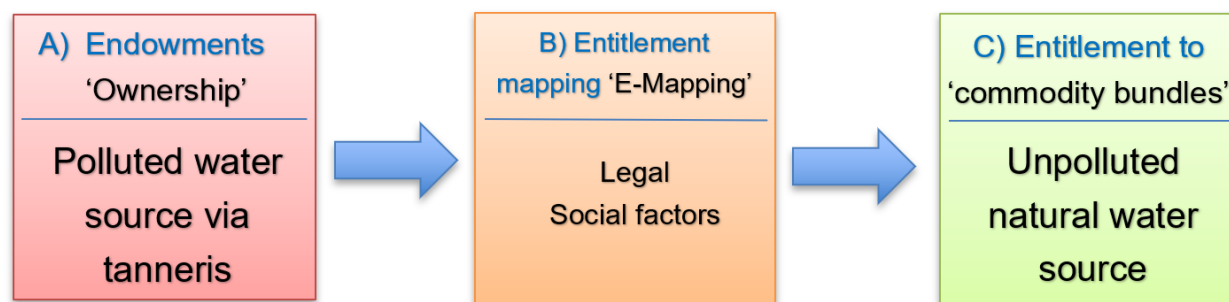
5.3 Exclusion via a lack of inclusion in water policy in Bangalore

Karnataka's state water policy

The state of Karnataka, India is familiar with the symptoms of globalization. Symptoms such as increasing population, urbanization, and industrialization are applying pressure on the finite amount of water reserves available. According to the Indian constitution the development and management of water is considered as a 'state subject', therefore the legislative and administrative frameworks for the supply of water are responsible within the state boundaries (WRD, 2002). The existence of the Karnataka State Water Policy (KSWP) is to ensure that there is a 'systematic development' and 'proper utilization' of its water reserves (WRD, 2002). Two out of six objectives of the KSWP stand out as critical points that are relevant to this thesis. The first objective says to "[p]rovide drinking water at the rate of 55 liters per person per day in the rural areas, 70 liters per person per day in towns [,] and 100 liters per person per day in the city municipal council areas [,] and 135 liters per person per day in city corporation areas" (WRD, 2002, p.4). No matter the location of the person, rural or a city corporation area, the objective is to provide each person with more water per day than the WHO recommends. This means that enough water should be supplied to allow a person to meet their basic needs such as drinking, cooking, and washing. The second objective says "[to] [p]rovide a legislative, administrative and infrastructural environment, which will ensure fair, just and equitable distribution and utilization of the water resources of the state to benefit all the people of the state" (WRD, 2002, p.4). There is an act of inclusion in this objective. This is because it states that 'all', rural or urban, should be provided with a just and fair distribution of water. That means it does not exclude specific groups of people based on their identity. In many ways this is easier said than done. For example, in terms of the quality of water, groundwater is not fit to meet the drinking water needs of the Karnataka population. "In about 4,500 villages ground water is not fit for drinking purposes on account of high fluoride or iron content of brackishness" (WRD, 2002, p.4). This means that the responsibility for the supply of water falls on alternative water reserves such as surface water and rainfall (WRD, 2002). The larger picture of KSWP shows us that there is an effort to ensure a fair and equitable distribution of water to all people within the state. Concurrently, the state is undergoing rapid growth, as it is home to one of the largest cities in India, Bangalore. Therefore, it is necessary to ask what access to water is like in Bangalore. A city with a rising population, urbanization, and home to many informal settlements with a residing Dalit population.
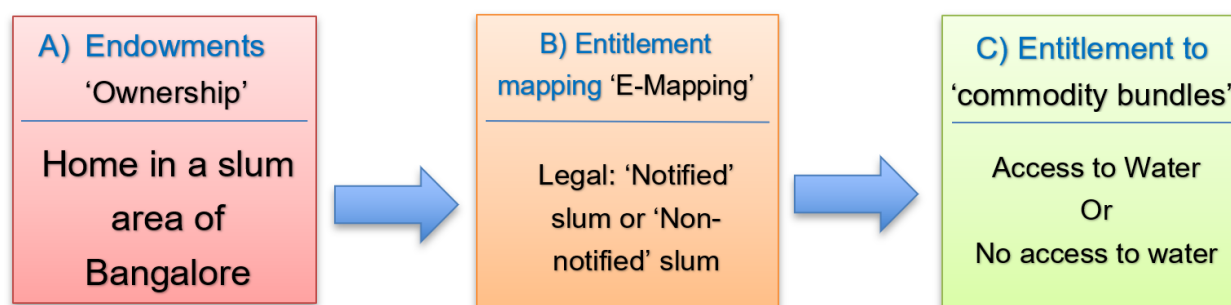
There are two categories of informal settlements that exist in Bangalore, those are notified and non-notified informal settlements. Notified informal settlements are registered with the Karnataka Slum Development Board (KSDB) and are legally protected to access some of the benefits that the city of Bangalore has to offer (Thara, 2017). On the other hand, non-notified informal settlements are informal settlements that are not registered with KSDB but to do have some form of representation under the fact that they consist of at least 20 households (Bandyopadhyay et al, 1981). The informal settlements that were built overnight on the pavements outside the Ejipura eviction consisted of more than 20 households, landing them into the ability of earning the status of non-notified informal settlements. However, just because an informal settlement is non-notified, and one is notified, doesn't mean that the notified informal settlement reaps all the benefits from the city and the other does not. "In some notified slums, individual land rights have been granted; in others, these grants have stalled. In some unrecognized slums [non-notified], people have voter ID cards, ration cards and electricity connections, while in others … they have none of these amenities (Krishna, 2014, pg.584). It is obvious that the benefits entitled to an informal settlement come in different shapes and sizes.

What are the rights of non-notified informal settlements to the provision of water? In Bangalore if an informal settlement is under the status of non-notified, they are not protected by local slums laws that give them the right to the provision of water (Thara, 2017). Without an explicit law protecting one's right to access water there is no local liability for actors in Bangalore to supply water to residents that are living in non-notified slums. The supply of water is provided by the state of Karnataka to slum areas of Bangalore. Distribution of water is managed by five municipal corporations that lie within the city's municipal area, known as the Bengaluru Mahanagara Palike (BBMP) (Thara, 2017). To access water 'non-notified' slum residents need to negotiate with other municipalities, purchase water from the private sector, and/or illegally access water (Thara, K., 2017). "In 2005, an informal estimate by the Karnataka Kolegeri Nivasigala Samyuktha Sanghatan (KKNNSS) (a state federation of slum-dwellers) put the number of illegal slum water connections as between 20,000 and 30,000 (Thara,k., 2017, p.257). The consequences for the people that are living in non-notified slums are dire, taking us back to the snowball effect. Without the access to piped water residents of 'non-notified' slums are then vulnerable to the issues such as poor health, a loss of time, and physical strain. The safety net that is needed in this circumstance is the legal protection of their rights to human basic needs, such as having the ability to access piped water. If this net did exist it could

prevent that snowball of issues that many people face when they do not have access to the provision of water.

Exclusion is the "actions or policies undertaken to exclude others as legitimate recipients of the distribution of [benefits] … [that is] experienced by either individuals or groups' ' (Bufacchi, 2012, p.10). It is possible to argue *exclusion* because 'non-notified' informal settlements are being excluded from accessing water via policy that does not include them to the provision of water in Bangalore. At the same time there is an existence of an explicit law that protects the rights of households in slum areas that are registered as 'notified' to access to water. In this particular situation a specific group, which are households in 'non-notified' slums areas are being excluded from accessing water. Moreover, it is possible to apply Sen's entitlement set to clarify the difference in entitlement between slums that are 'notified' and 'non-notified'. Figure 12 below shows the endowment of categorized slums and the channels that dictate the entitlements they can command. The endowment in this particular case is the ownership of the house in the non-notified slum area of Bangalore. The ownership of a house (asset) in a non-notified slum area is accompanied with or without the protection to access water via their legal rights. The 'legal' channel of e-mapping dictates the rights that the house in a non-notified slum of Bangalore deserves. In this case, whether the slum is 'notified' or 'non-notified' dictates their rights and thus the entitlements they can command, such as water. The entitlements to regards of this particular scenario and furthermore to this thesis is the accessibility to water.

Figure 12: Sen's 'entitlement set' applied to 'notified' and 'non-notified' slums in Bangalore

A) Endowments 'Ownership'		B) Entitlement mapping 'E-Mapping'		C) Entitlement to 'commodity bundles'
Home in a slum area of Bangalore	→	Legal: 'Notified' slum or 'Non-notified' slum	→	Access to Water Or No access to water

6. Spatial injustice by geographical uneven-development in Bangalore

It is in hopes that our spatial environments can be a net to shield us from experiencing hardship, sadly I can say that is not the case for many people living in Bangalore. This branch of the thesis takes a look at the struggles of spatial injustice through the concept of geographic uneven development. First the section will open by acknowledging the gaps in the workforce of Bangalore. This focus is with the aspiration that we can see the diversity in the workforce, and admit that there is a population in Bangalore that is working for low wages. Following, my research on spatial injustice recognized the role of migration for many people in Bangalore. This section departs from the concept of the 'Push-pull' theory, but also goes beyond by applying thresholds that put the decision to migrate into action. Finally, my analysis on this section attempts to understand the unequal distribution of wealth, resources, and people by investigating the sub-case of the Ejipura eviction. A combination of these three sections will provide for a comprehensive understanding of the experience of spatial injustice in Bangalore.

6.1 The occupational gap in Bangalores workforce

The shift to economic liberalization in India shaped its metropolitan cities to host companies and attract people from all walks of life. The IT capital of India, Bangalore, houses 35% of India's 2.5 million IT professionals (World Population Statistics, 2017). An abundance of media reports reveals that the rise of recruitment in the IT sector is not slowing down. A media report states that "in June of 2021, hiring demand by the IT software and services sector was 55% higher than it was in January 2021, and 51% higher than it was in June 2019" (Anand, 2021). Coexistent with the rise of Bangalores high-tech jobs is the increasing workforce in the city's informal market. An informal economy is the part of any economy that is neither taxed nor monitored by any form of government (Calbreath, 2010). Any person that has explored Bangalore or any other growing city in the developing world can testify to the fact that there is a strong presence of people working in the informal market place. In the informal market the earnings are day-by-day. The Kurubarahalli neighborhood in Bangalore is a fitting example of what it means to work in the informal market place. Kurubarahalli is a densely populated neighborhood that is characterized by a lot of traffic, shops, and eateries. On the streets of the Kurubarahalli neighborhood "on any working day you can see 1,000 - 1,500 workers waiting to be picked up for jobs (Chethan, 2019). Photo 1 is a picture of many people lining the streets in the Kurubarahalli neighborhood, waiting for their share of day labor. The majority of these

people lack an education, in turn they work jobs which are physically demanding for a day's pay. These jobs consist of positions such as plumbers, painters, and carpenters, women work as house workers, mix concrete and/or move bricks (Chethan, 2019). Media reports state that a man, by the name of 'Swamy', is illiterate and depends on the day labor that is available in Kurubarahalli for his earnings, which if he is lucky is only three times a week (Chethan, 2019). The bottom line is that informal work in Bangalore, or any other developing city is unreliable. Everyday people move long distances to cities like Bangalore to offer the skills and little time they have to depend on an unreliable means of income. In comparison to the IT workers and the rural labor migrants there is a gap in regards to job security, skills an individual can offer, and the levels of income between the two groups of people.

Photo 1: people lining the streets waiting for their share of day labor in Bangalore

(Chethan, 2019)

6.2 Push-pull factors and thresholds of rural-urban migrants in Bangalore

Uprooting a life in search for a better future is never an easy task, and the forces that encourage the decision to do so are a necessity to learning why there are is an influx of rural to urban migrants in Bangalore. In the context of Bangalore, many of the intrastate migrants (migrants within a state) are coming from a rural environment (Chand, 2013). A study using a primary survey of migrants in Bangalore offers an understanding of 'push' factors (out of the

rural area), and 'pull' factors (toward the urban area due to its perceived benefits) (Sridhar et al, 2013). The results of the study, displayed in Figure 13, shows us that 28% of the respondents decided to move because they 'got a better job or there are better job opportunities in the city', which is in line with a pull factor – moving to an urban are due to its perceived benefits (Sridhar et al, 2013). A search for better job opportunity in an urban environment could be because of a lack of job opportunity in the rural environment that a person is living. The second interesting slice of the pie chart shows that 26% percent of the respondents decided to move because there is an 'expected higher income'. An expected higher income is also related to a threshold approach, which is a factor that puts their decision into action. One of the threshold approaches is decision of the location to move to (Hillmann et al, 2017). Bangalore can be a decided as a location because it is known as a city that has an opportunity for a high income. We can continue to go beyond the push-pull theory by focusing on the first thresholds approach which is the mental threshold. These are the feelings and the sense of belonging to the location of which the person is aspiring to live (Hillmann et al, 2017). In Pie chart B below, we can see that 6% of migrants that moved to Bangalore was because of 'Family networks in the city' (Sridhar et al, 2013). Having a family member in the city they are moving to is a connection that they can depend upon when living or while moving to Bangalore, adding a sense of comfort to the decision-making process.

Figure 13: The role of push-pull factors in rural to urban migration in Bangalore (Sridhar et al, 2013
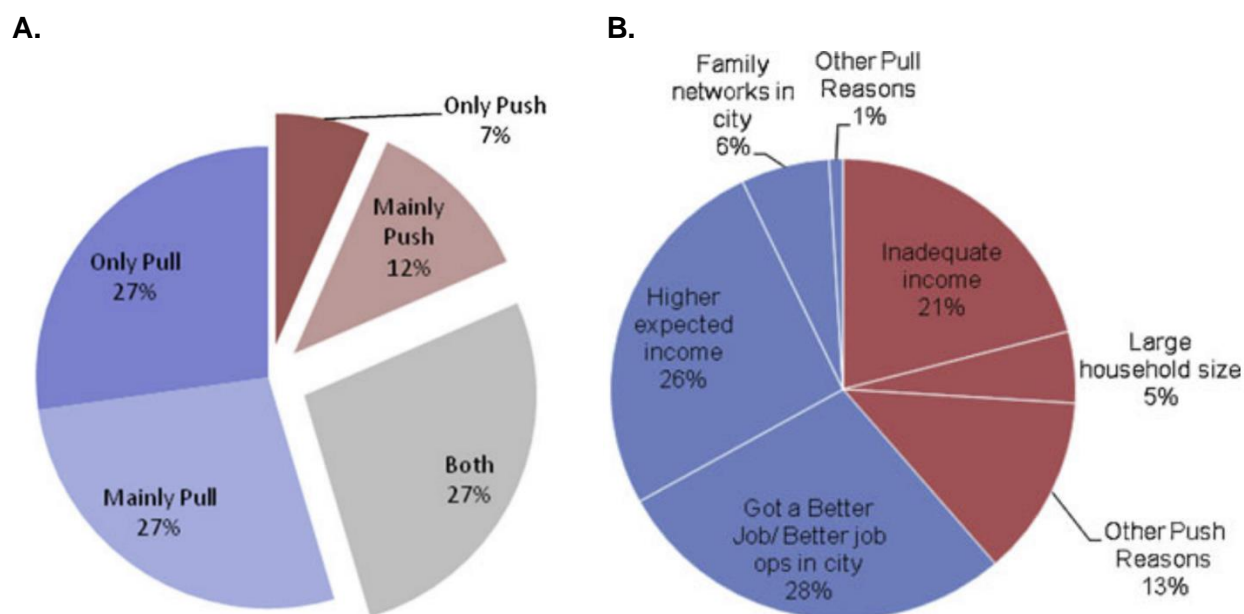
The means to reach the desired location is critical to any person in their process of migration. Besides the two thresholds previously analyzed it is a threshold that opens an opportunity to the means of a migrant in India. In this passage I want to use art as a worthy expression of a means for a migrant in India to meet their destination. It's important to note that the path of migration is not only one direction, it can also be in the reverse, for example urban to rural. Whatever the direction may be, relocation is never easy. The second wave of Covid-19 in India exposed the harsh realities for migrants as the flow of migration moved from urban to rural. In April of 2021 a New York Times headline said, "In India, Second Wave of Covid-19 Prompts a New Exodus … Low-paid workers are starting to flee the cities in masse … Their hometowns, often in far-flung places, may once again be ill prepared to test arrivals and treat the sick" (Gettleman, 2021). A forty-eight second animated film expresses the difficulties migrants experienced when relocating from an urban to a rural context during the second wave of Covid-19. Below are 5 snippets from the film. Debjoti Saha (2021) is an Indian artist who created the film 'Korona' to express the struggles and realities during the urban lockdown in India, and furthermore an exodus of poor populations to rural areas (Saha, 2021). The sequence of pictures is individually divided into two, comparing a wealthy person with access to basic necessities and a poor person without basic necessities (Saha, 2021).

The film starts by showing a man sleeping, supposedly in his home, in a bed (Saha, 2021). To the right of this image is a man sleeping outside, assumed by the sounds of a passing car and its lights, in a crowded space with a baby on his chest (Saha, 2021). The beginning of the film depicts the poor living environment compared to a wealthy living environment. The wealthy person is safe because he is protected by his home equipped with its basic necessities. The poor person is depicted by showing that he has no home for him, his wife, or his son to keep them safe.

Sixteen seconds into the film a picture divided into two, one above the other, shows the difference in access to water for each person. The picture on top is a person that is pouring drinkable water down the sink (Saha, 2021). It shows that the person is not worried about wasting any water. The bottom of the divided picture is an image of a man and a dog (Saha, 2021). In the film the sound effects and animation illustrate the man and the dog drinking out of the same water in a position that is facing them towards the ground. This image portrays the impassability of water for poor populations, while they are migrating long distances to their rural communities. The lack of access to water for this man has resulted in him having no other choice but to risk his life by drinking contaminated water off of the ground.

Halfway through the video an image is shown to display the conditions of the Covid-19 pandemic. On the left side of the picture a person has access to running water and is able to take a shower (Saha, 2021). The access to this basic necessity is a form of protection for this man, because he is able to sanitize himself. The picture on the right side symbolizes the lack of access to water for a poor person. Without access to water the poor person is dependent on a green disinfectant from a person in a hazardous suit. More so, it is shown that this is the circumstance for more than one person, as there is a second medical aid worker in the background spraying the green disinfectant.

Just before the end of the video is an image of a man migrating away from where he lived. The picture on the left shows a man that is safe, because of the access he has to basic necessities such as water and housing (Saha, 2021). In addition, he is not pressured to relocate his life because he is safe from the protection of his home. On the right side is the man without basic necessities (Saha, 2021). With no other choice he decides to migrate to his rural homeland with his two children. This picture solidifies that the lack of access he has to a basic necessity, like transportation, to get him and his family back to safety are absent. Therefore, in the video the animation shows him exhausted and struggling walking by foot.

Unfortunately, the last image is of the man giving up. In the picture his face shows that he is very sad and fearful. With these expressions a tear is running down his left cheek. It is assumed that he has given up as he is laying on the railroad track and there is a light that is steadily approaching. In the film there are sounds of a train that is ringing its bell, signaling that a train is approaching. Without a home, he is unable to care for his family, as well as provide protection from the Covid pandemic. Without access to water, he has to drink water from the ground and use green disinfectant to protect himself from Covid-19. Without transportation he has to take the long trek carrying his children on his body, before he gives up and lays on the railroad tracks. In the context of this thesis the relevance is migrants that are moving from a rural area to an urban area. However, I felt that this piece of digital art gives a clear

understanding of what is experienced when migrants are relocating, especially for reasons of Covid-19.

A poem on rural migration by professor William A. Douglas (Douglas, 2015)

Another form of art, in the shape of a poem, can be used as an expression that is worth wile to analyze the difficulties of migrants that have recently relocated. The poem is not written by a 'rural to urban Indian migrant' per se, however it is written by a professor that has taught courses on international ethics, and labor in developing countries. The poem depicts all the current and relevant components of migration. In the first stanza a line reads "But for migrants, city life's not always pleasant - [it]'s the lesser evil, for the migrating peasant" (Douglas, 2015). The sentence expresses that life for a rural migrant does not get any easier. There are obstacles they face, lack of human rights they bare, and in some cases discrimination they experience. The lack of rights is supported in the second stanza by stating that without a green card in the United States you have no legal protection (Douglas, 2015). The poem continues by explaining that the homes they left behind for the resources in the urban city are next to none, thus the rural migrants are left without basic necessities like houses, clinics and schools. The final sentence in the poem says "[t]he migrants are neither lazy nor moochers with a bit of help, they will build their own futures' (Douglas, 2015). In a way this is a statement saying that there is a need for developing countries to act on the suffering of their own people, rural migrants, who too like the urban wealthy, deserve a good life.

In every developing nation,
We see rural-to-urban migration
Some say the city's lights lure with such charm,
That you can't keep the peasants down on the farm.
But for migrants, city life's not always pleasant-
It's the lesser evil, for the migrating peasant.

In American, life can be risky and hard,
If a migrant lacks that important green card.
In China, when to the big city you go,
You have no rights, with no urban *hukou.*
Such migrants are stuck in a risky hiatus-
De facto, they're urban, but without legal status.

With this torrent of migrants appearing within,
The city's resources are stretched very thin.
There aren't enough houses, or clinics, or schools,
Or electricity, sewerage, playgrounds, or pools.
On the hillsides the migrants in shanty-towns live,
Where life is hard, with few pleasures to give.

With urban life so rough and so grim,
Why do migrants keep wanting in?
The rural population continuously growing,
But there is no growth of land that's worth sowing.
So, each year we see more peasants on hand,
But they can't all be farmers, if some have no land!
And life in the country's not always rewarding,
So, the trains to the cities the migrants keep boarding.

Governments may try to stop the migrations,
With barriers and regulations.
China has the *hukou*, America a wall,
But the migratory wave slows hardly at all.
Some suggest reversing the flow:
The factories out to the peasants should go!
But this scheme of dispersed industrialization,
Is seldom applied in a developing nation,
Because it's thought to be an abomination
To forgo the "economies of conglomeration."

Since there is no way to hold back the tide,
The developing countries have got to provide
A better existence for those who arrive,
So, they can live, and not just survive.

The migrants' appeals for help must be heeded,
And, of course, more funding is needed.
The migrants are neither lazy nor moochers-
With a bit of help, they will build their own futures.

6.3 Ejipura eviction: unequal distribution of wealth, people, and resources

In this section of the analysis the dimension of spatial injustice, focusing on geographic uneven development, will be used as a point of departure to understand the experience of spatial injustice in Bangalore. Geographic uneven development is when the relationship between people and the physical environment produces an unequal distribution of people, resources, and wealth (Warf, 2006). Geographic uneven development is applied to the Ejipura eviction to understand Bangalores wider systematic issues which lead to the experience of spatial injustice. To understand the specific spatial impact of the Ejipura eviction a collection of 35 documents consisting of news reports, academic publications, blog post, and petitions discussing the Ejipura eviction have been gathered and analyzed with the qualitative analysis software Atlas.ti. Atlas.ti is a qualitative research tool that is used to code and analyze documents to create network diagrams for data visualization. The first step taken is to scan all the documents for words that correlate to the spatial impact of the Ejipura eviction. The relevant words that were searched were Ejipura, water, health, slums, dwellers, evictions, demolition, rights, corporation, etc. In the web of words presented in this passage you can visualize the frequency of the words. Words such as Bangalore, land, government, eviction, and slums are some of the words that occurred the most. Once the words were identified, I coded sentence that used these words. This means to simplify the sentence with a label to clarify the intention of the sentence. The codes where then

grouped into three categories, wealth, people, and resources. Grouping the codes into these specific categories allows for a critical insight into what the documents are saying about the different dimensions of geographic uneven development regarding the Ejipura eviction. The data that is collected from each group is presented in three different web forms – a) the unequal distribution of wealth, b) the unequal distribution of people, and c) the unequal distribution of resources. The center of the web is shaded in blue and then divided into three green areas specifying the various impacts of spatial injustice on the Ejipura eviction. The idea of this qualitative approach is to highlight the impact of the unequal distribution of wealth, people, and resources results in spatial injustice.

Unequal distribution of wealth

A series of events and decisions led to the demolition of Ejipura, thereafter an influx of evictees had no other choice but to live in inhumane conditions. What imbalance has caused such barbarous decision making? In many circumstances of unfair decision-making scholars have suggested that it is "not so much, or not so merely, the rule of the moneyed class as it is the political embodiment of the money-making ideal" (Howells, 1894, p. 190-191). A closer look at the actors behind the decision making will reveal that their motivation falls in line with the money-making ideal. Key decision makers behind approving the development project had relationships within the political arena and private development project (Martinez et al, 2021). "The private developer involved was a Bangalore based company lead by a Chief Executive Officer who was also an active member of one of India's ruling political parties, and ran as a candidate of the legislative assembly in a constituency in Bangalore" (Martinez et al, 2021, p.304). The concentration of power in one person influenced the capacity the BBMP had to prevent the development of a shopping mall (Martinez et al, 2021). The BBMP was not able to prevent the development, and thus Ejipura was bulldozed to make space for a shopping mall (Martinez et al, 2021). At this point there is an unequal distribution of wealth. The wealth accumulated from the decision making only favors one person, as well as the private developer that is building the shopping mall. It does not favor the residents, because there is no benefit for them. They are left to live on the pavements on the outside of the shopping mall. The web below exhibits the details of the unequal distribution of wealth. From the web we can see that in regards to the courts that support the elite, the project was approved to favor maverick holdings, the private developer building the shopping mall. In addition, Mavericks was protected from adverse court rulings. In terms of public-private partnership unequal distribution of wealth is supported when 100% of the revenues earned are given to Mavericks. The unequal distribution of wealth also effects families. It was discovered in the analysis that many people were

powerless among their protest in violation of their property rights. In this review we can observe that the unequal distribution of wealth has impacted the legal decision making, the partnership between the public and private sector, and most importantly the voice of the families that tried to protest a violation of their rights.

Figure 14: Unequal distribution of wealth

Unequal distribution of people

The consequences from bulldozing Ejipua will be outlined in detail to explain how the unequal distribution of many people have been subjected to a lack of access to water. After literally sweeping away their homes limited opportunity led to many evictees' deciding to move further outside of the city (Martinez et al, 2021). Moving further away from the city meant less job opportunity, therefore to access the job market in Bangalore many evictees needed to pay the cost of time and money for transportation to Bangalore. Unable to consider this option evictees moved to live into informal settlements onto the streets of Bangalore (Martinez et al, 2021). This was particularly important because typical jobs of women that live in Ejipura worked as housemaids in wealthy houses in Koramangala, a nearby neighborhood from Ejipura (Martinez et al, 2021). Below is photo of an Ejipura evictee, explaining that after her home was

bulldozed, she had no choice but to live on the streets (iijnmbangalore, 2015). The web illustration below, begins with the shaded green identifying that there is an unequal distribution of people. The web brakes into three areas – the victims of Ejipura, the amount of people evicted, and where some of them have decided to live. The victims were identified as mostly low caste members such as the Dalits. Of this group of people revealed that there has been a high amount of alcohol consumption. The amount of people that were evicted is 5,000, of that amount 24 households decided to live in informal settlements on the pavements. Opposite of the eviction site families lived in tent cloth housing many of which had no means of access to the provision of water.

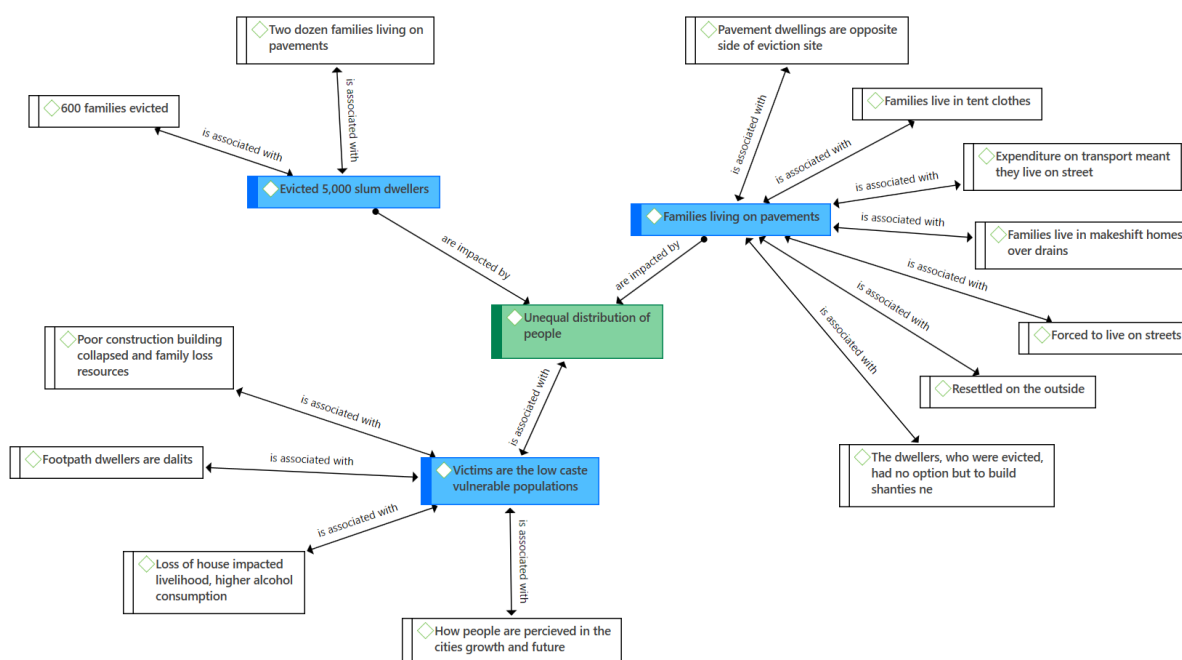**Figure 15: Unequal distribution of people**

Photo 2: Ejipura evictee explaining that her home was bulldozed


Unequal distribution of resources

The inability to access basic services, like water, makes it much more difficult for a person to improve their sustainable livelihood. Exclusion via the lack of legal protection for Bangalores non-notified informal settlements put people in living conditions that do not benefit from the provision of water. Picture 3 below, is an image of a family that is living in an informal settlement outside the eviction site (iijnmbangalore, 2015). It is possible to see that the house is made of plastic and wood. Presumably the containers on the outside of the house are there to store water. This water is likely used for basic household chores such as washing, cleaning, and cooking. The lack of water in this family's home is explained in the web diagram below, beginning with the unequal distribution of resources, shaded in blue. The web diagram is separated into two different webs: Eviction led to the loss of water supply and families living on pavement lacking access to water. If we follow the statement which says an 'eviction led to the loss of water supply', we can learn that evicted families had no proper water, sanitation and toilet facilities. They also had to pay for basic services like water, and likely experienced water related health issues. If we follow the web stating 'families living on pavement lack access to water' we can learn of a few more experiences from not having access to water. This is support to the fact that informal settlements on pavements do not qualify for any benefits from the state, such as the provision of water. This eventually led to women residents testifying that there is an

absence of the provision of water. Water, housing, transportation, legal protection, are all components to a person being able to sustain their livelihood.

Photo 3: family that is living on the street outside the Ejipura eviction site on the pavement

Figure 16: Unequal distribution of resources
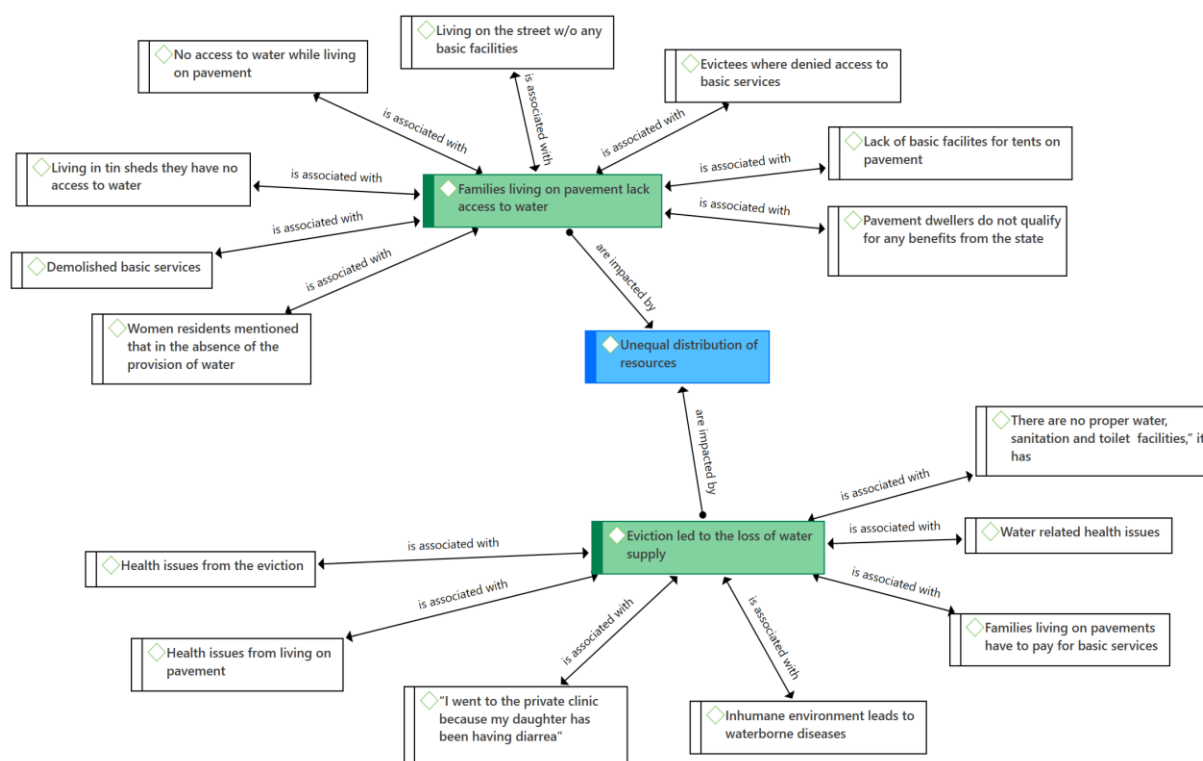
7. The study of a water-related impact on livelihoods of non-notified informal settlements

In part three of the analysis the sustainable livelihood framework will be applied to the lack of access to water for non-notified informal settlements in Bangalore in the aftermath of the Ejipura eviction. The definition of a sustainable livelihood is "when [a livelihood] can cope with and recover from the stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (DFID, 2001). The application of this definition will humanize the experience of a lack of access to water by unfolding into three sections. The first section will utilize social exclusion as a precursor to a shock within the vulnerability context. The following section will explore the risk of livelihood assets of the Ejipura evictees, to gain a clear insight into the impact a lack of access to water has on their livelihood. The analysis will conclude by understanding their livelihood strategies and the livelihood outcomes of these strategies.

7.1 Transforming processes: policy excluding the provision to water

In the context of transforming structures and process, structures are the organizational network of the public and private sector (DFID, 2001). Whereas processes are concerned with the laws, policies, culture, and institutions (DFID, 2001). Both 'structures' and 'processes' have an impact on the livelihoods of non-notified informal settlements (DFID, 2001). As a precursor to the impact on livelihoods of non-notified informal settlements is the policy in Bangalore, which does not include them to the provision of water. Concurrent to the lack of inclusion to the provision of water is that non-notified slums are made of makeshift tents. The inhumane living environment, itself, is unable to host infrastructure for access to water, and it at times located in far distances from public taps where a person and/or household can access water. Both of these circumstances in combination with one-another stand as the precursor which influences the vulnerability context of livelihoods in non-notified informal settlements.

7.2 Vulnerability context: Human health shocks

The vulnerability that many people living in non-notified informal settlements of Bangalore face are 'health shocks', primarily because of the role of a lack of access cause

water-related illnesses. A health shock is 'any illness that prevent[s] a household member from doing normal activities, serious illness can include any health problems, for example disability, disease, injury, or any other chronic disease (Morudu et al, 2020). In relation to the Ejipura eviction there are a number of health shocks that are related to a lack of access to water for people that are living in non-notified informal settlements. This has been learned through a video of a doctor that provided medical care for Ejipura evictees living in non-notified informal settlements. Upon providing health care for Ejipura evictee's Dr. Sylvia Karpagam has discovered that there are at least two or three people in each family that are sick with fever, high blood pressure, and diarrhea (iijnmbangalore, 2015). These symptoms are often a result of severe dehydration (Medical west, 2021). Furthermore, Dr. Sylvia Karpagam states that many mothers are unable to cook for their families, thus leaving family members with a lack of nutrition (iijnmbangalore, 2015). The absence of water for the Ejipura evictees has led to many people dying, and if not that with serious health complications that has not allowed them to pursue their daily activities. Many of the people that are exposed to a lack of access to water are unable to work because they are bed ridden. Below in Picture 4 we can see that a person is lying in bed in the middle of the day recovering from an illness that is possibly linked with a lack of access to water.

Photo 4: Ejipura evictee bed-ridden, recovering from illness

(iijnmbangalore, 2015).

7.3 Livelihood assets tied to a lack of access to water for non-notified informal settlements

A variety of livelihood assets in the form of capital are represented in the sustainable livelihood framework as human capital, natural capital, financial capital, physical capital, and social capital. In situations of poor populations, like Ejipura evictees, more than one asset has a role in their ability to access water. A report on the Ejipura eviction has presented their main findings from a fact-finding mission which will be used to explore the relationship between livelihood assets and the accessibility to water. The report consists of testimonies from former residents of Ejipura, relocated Ejipura tenants, and civil sociey actors that offer their testimonies of their individual views of the Ejipura eviction and the circumstances they now face. Using these testimonies as part of the analysis will give a perspective on their ability to access water in connection with the role of livelihood assets.

Testimony 1: Vijaylaxmi (woman, 31 years old)

> "During the demolitions, half our belongings were lost. We have been living on donations and relief provided by people. We are on the streets with our children and our belongings. Children are not able to go to school, they are not able to study, and there is no electricity at night. We are using nearby public toilets and bathrooms. We have to use the same toilet used by men. What will the girls do when they have periods? We have to pay 20.00 [INR] (0.24 euros) for every bath. Somebody has to stand guard outside when we bathe because the bathroom doors don't close". (Chaudhry et al, 2013, p.56).

Vijaylaxmi is a 31-year-old female that reveals that there is a lack of infrastructure and goods in her environment to allow her to access water (Chaudhry et al, 2013). The environment that Vijaylaxmi and her family are living does not have piped water that is supplying water to their household, nor do they have a goods available to transport and store a large amount of water at their household. Accompanied with this is the lack toilets and bathrooms with running water, both of which are goods that are vital for them to access water. Vijaylaxmi and her family have to depend on the public to meet their basic needs. Unfortunately, this comes at a price. Their safety is at risk and they have to pay to use the restroom. It is not a fact that they will always have the funds to use the restroom, which is their only way of accessing running water when they need to use the restroom. In these circumstances families resort to open defecation. In addition, her daughters do not have the privacy they deserve because they are using the same public bathrooms as men.

Testimony 2: Dr. Sylvia Karpagam (Co-convenor, Jana Arogya Andolana, Karnataka)

"By the fifth day many people called out to me complaining of different ailments. The thought that crossed my mind repeatedly was that a healthy productive adult population and an active school going child population had been overnight rendered without homes, water, toilets, and jobs and had become an ill population. Many women said that they were not drinking water because the nearest public toilet was a twenty-minute walk. The elderly and those who were injured found it difficult to access toilets". (Chaudhry et al, 2013, p.69).

Dr. Sylvia Karpagam is a doctor that is speaking on behalf of many evictees some of whom she has treated which are living in informal settlements without access to water. The absence of infrastructure in their environment is, once again, having an impact on the ability to meet their basic needs, such as accessing water. Because of no piped water to their household many women have stopped drinking water all together. The closest water source is a twenty-minute walk from where they are at, which is a very difficult walk for people that are elderly and injured. The requirement to walk such long distances is not only a physical strain but it is also risk to their safety. That is because walking for twenty minutes, at night, puts women, children, and men in vulnerable positions of being victims of crimes.

Testimony 3: Woman tenant 2

"Our employer may give us a week's absence from work, if I don't have a home, how do I attend work? I have very small children, four and 10 years old. The older one got jaundice while shifting from the demolished EWS Quarters. Half of my belongings were stolen from the tempo. Even my stove got stolen. If someone distributes cooked food, then we have food, otherwise, we starve. A relative who stays nearby helps me a bit, and there is no drinking water; for a can of water, they charge 20 [INR] [(0.24 euros)] here" (Chaudhry et al, 2013, p.75)

Testimony 4: Others

"We are domestic workers and earn 3,000 [INR] [(35.00 euros)] per month, on average. We've lost our jobs since we couldn't go to work for a month and were replaced by others. There is no safety for women here. We don't sleep at night; Five of us take turns to stay awake, playing carom. The policy and *goondas* (hooligans) get drunk at night and go around. Last night, one policeman told us that we couldn't stay out and talk at night since it was a public place. We have to go to the Infant Jesus Church nearby for bathing (for which

they charge 30 [INR] [(0.35 euros)] (per head), and using the toilet (four rupees each time). We bathe once in five days. (Chaudhry et al, 2013, p.73)

In both, testimony 3 and 4, we can recognize the role of social capital through the 'relationship of trust' and a 'network and connectedness' in both testimonies. For a quick reference the relationship of trust is a facilitator of trust for a person to use as a means for them to meet their basic needs. In regards to network and connectedness there are two parts, that being patron and client relationships (vertical) and shared interest (horizontal) (DFID, 2001). In Testimony 3, 'Woman tenant 2', it is made clear that she is living in an environment that has no access to drinking water. For this reason, she depends on a nearby relative to help her meet her basic needs. Depending on a nearby relative for assistance, such as access to water, shows that there is a relationship of trust with a relative that lives nearby. The level of trust is a facilitator that helps her to avoid paying the 20 INR (0.24 euros) for the cost to access water. The ability to not have to pay for water advances her means to reaching her basic needs. Whereas on the other hand if there was no facilitator of trust from her nearby relative, then she would need to pay to access drinking water to meet her basic needs. In Testimony 4 it can be assumed that she is living in the open, possibly on the street, due to the conditions of the household not being able to speak at night because they are in public. In their particular living conditions, once again like many other Ejipura evictees, they do not have access to water. To access water, they need to go to the nearby church to use the bathroom and toilet, costing them 34 INR (0.40 euros). From this we can preview network and connectedness, particularly the vertical factors which means to have patron or client relationships. The people in this testimony may likely be a member of the church, therefore they fall into the category of being a patron or client. With this membership, they will have to pay, however they can access water to meet their basic needs. It is important to recognize how network and connectedness can act as a means for a person that does not have access to the provision of water via the factors of being a client to the church. Both of these testimonies show us in an indirect and direct way the ability for a person to access water, but also how important it is to have the means to access water to meet a person's basic needs, thereafter to improve their livelihood outcomes.

The snowball effect that has been vaguely mentioned throughout this thesis as a representation of the problems that are incurred when not having access to water. At this point in the thesis the snowball of problems of the Ejipura evictees have reached a momentum of problems in their life, all revolving around a lack of access to water. The velocity that pushes the snowball began when the residents of Ejipura being evicted overnight. Many people lost the assets that shielded them from living in inhumane environments. Until the time came for them to

access alternative benefits no shield was present to prevent the snowball from growing, thus 24 families resorted to living in informal settlements outside of Ejipura. Life on the street welcomed the residents with no legal inclusion to the provision of water, a shield that could otherwise prevent the snowball from growing. Without any protection Ejipura evictees experienced a health shock, characterized by symptoms from severe dehydration such as diarrhea and high blood pressure. The lack of infrastructure and goods in their environment left them with no way to meet their basic needs, such as access to water. The absence of both these variables brings problems such as a risk of safety to their lives, that is because without water they then need to walk 20 minutes or more, sometimes at night, to reach facilities with running water. Social capital in its own way is a shield of protection, however the means of social capital as a shield is not a sustainable way to prevent the snowball from growing for Ejipura evictees. The evictees have thus turned to relatives and/or networks, such as a church, that are able to provide access to water so they can meet their basic needs. Many aspects of their lives have to be adapted and strategized to meet their basic needs. Therefore, it's important to look at the strategies of the Ejipura evictees.

7.4 Livelihood strategies: a coping strategy

What are the livelihood strategies of the Ejipura evictees to meet their daily basic needs? Livelihood strategies are a "combination of activities and choices that people make/undertake in order to achieve their livelihood goals" (DFID, 2001, p.35). The choices of Ejipura evictees are crucial to learning of their livelihood strategies and outcomes. We must first begin by looking at the external forces of their environment that dictate the choices they are making. Time is an important external force that predicts the choices we make in our daily lives. The notion of time are the events that occur that can take place in the past, present, and future (Murphy, 2001). The notion of time is subjective to the person that is experiencing past, present, and future events; therefore, phrases like "time is on my side" and "I have all the time in the world" depends on the frequency of events in a person's life. Events that are always occurring for people that are living in poverty weighs heavy on their notion of time. There is a concept used by academics to understand the comprehension of time for people that are living in poverty. 'Time poverty' is when "some individuals do not have enough time for rest and leisure after taking into account the time spent working, whether in the labor market, for domestic work, or for other activities such as fetching water and wood" (Wodon, 2006, p.6). For a moment let's take the time to walk in the shoes of an Ejipura evictee to see how there is no rest or leisure because they are occupied with task such as finding a home and fetching water. A past event

that began their hardship is being evicted and left to live in an informal settlement. A present, and subsequently future event, is the inability of access to water. The frequency of these events, one-after-another, weighs heavy on the notion of time for Ejipura evictees. That is because finding access to water, let alone a new home, are priorities in their life that take long periods of time, months and possibly years. Whereas now the frequency of these life changing events for Ejipura evictees is condensed into a single night. Living on the side of the street, with a family to care for, means that they need to take the time out of their day to fetch water, bathe, or negotiate a connection to water from other communities. This is indeed very difficult when their time is occupied by work, caring for infants, and/or if they are bid-ridden because they are ill. A coping strategy is then ensued which causes them to prioritizes their access to basic resources, for example access to water over health care. Following, we will observe how their coping strategy is played out as means to meet their basic needs and how that impacts their livelihood outcomes.

7.5 Livelihood outcomes: Reduced vulnerability?

Livelihood outcomes are defined as "the achievement or outputs of *livelihood strategies"* (DFID, 2001, p.37). A person's livelihood outcome is divided into four areas: more income, increased well-being, reduced vulnerability, improved food security, and a more sustainable use of the natural resource base. Each area is important to understanding the livelihood outcomes of a person, however reduced vulnerability will be used to understand the livelihood outcomes of the Ejipura evictee's that are living in informal settlements. Reduced vulnerability in the context of poor populations is to improve their sustainability amid adverse effects from the vulnerability context (DFID, 2001). The vulnerability context are the shocks that the impair a person's livelihood assets, in this case the ability to maintain their health.

Basic services

As we've covered Ejipura evictees that are in informal settlements are not included in the access to basic services, one of which is the provision of water. An assessment of access to basic services will show the difficulties of accessing water for Ejipura evictees, and how it impacts their livelihood outcomes. The assessment consists of evictees that have found housing and evictee's that have not found housing, which are now living in informal settlements without access to water. "[F]amilies who are living [in informal settlements] on the pavements near the demolished site at Ejipura are using public (pay and use toilets). The charge for the use has

increased from 2 [INR] [(0.024 euros)] per person to 5 [INR] ([0.059]) per person and they have to travel about half-a-kilometer to access the toilets in Neelasandra" (Palavalli et al, 2017, p.28). In Figure 17 below, we can see that the average monthly expenditure of water has increased to more than 50.00 INR [(0.59 euros)] (Palavalli, et al, 2017). The increase of more than 50.00 INR [(0.59)] makes the case for the proposition - not having the provision of water is not reducing vulnerability but putting a person a risk of being vulnerable. The reason for this is a series of events that have caused hardship in their livelihoods has led to a coping strategy. To cope in this circumstance is to find resources that will meet their basic needs, in this case water. On the other hand, needs that are also basic, but necessary like health care, do not take priority over the access to water. Thus, their decision is to pay more money for access to water because it is cheaper compared to other basic needs, such as health care. Without proper health care Ejipura evictees are left without the professional diagnosis of disease or illness, and thus adequate treatment is left unknown. The absence of inadequate treatment is a path to influencing them to experience a vulnerability shock, such as poor health.

Figure 17: Average monthly expenditure on public utilities (Palavalli, B. M., et al., 2017)
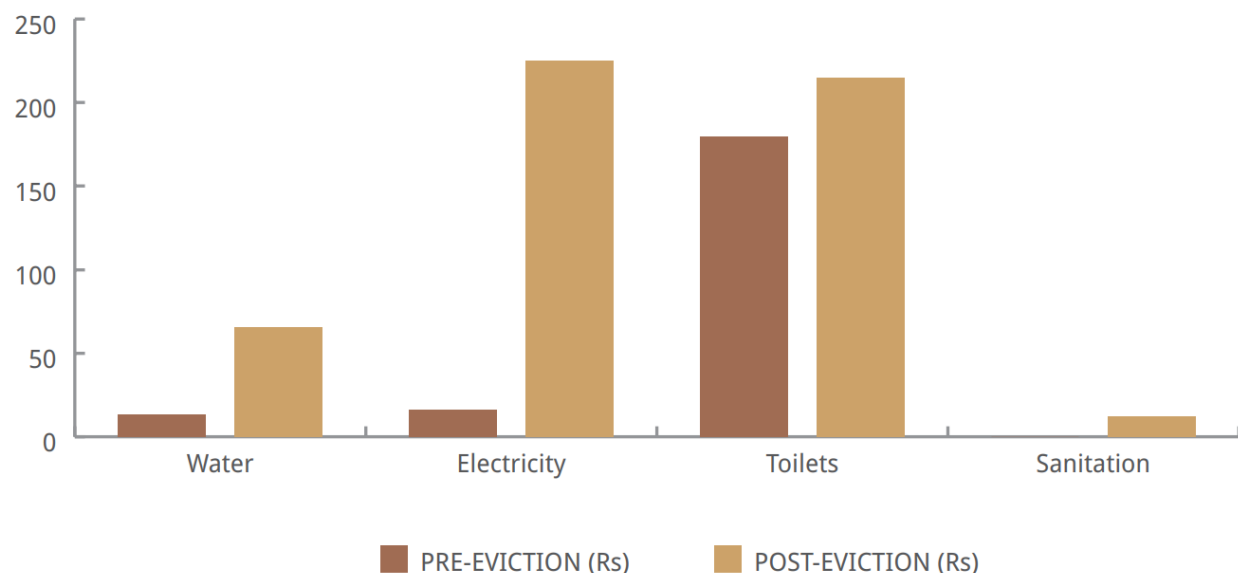

Healthcare

The second part of the assessment provides a visual on the expenditure of health care for the Ejipura evictees. A decrease in payments to healthcare plays a part in putting families at risk of being vulnerable to health shocks. "One of the respondents reported that her three-month-old baby died from exposure to the cold as she did not have money for her baby's

treatment after the eviction" (Palavalli et al, 2017, pg.26). It a shame for a baby to died because of a lack of health care, and because of reckless endangerment from the elite decision makers to bull-doze Ejipura and the BBMP that did not prevent the destruction of Ejipura. In Figure 18 below we can see the average monthly healthcare expenditure: before and after the eviction. In the graph we can see that the expenditure for healthcare has decreased by more than 4,000 INR [(47.02 euros)] (Palavalli, et al, 2017). "Most of the respondents, however, do not have sufficient money to spend on healthcare and *this* has led to a sharp decline in the expenditure on medical treatments" (Palavalli et al, 2017, p.26). The inability for Ejipura evictees to access health care is not only a violation to their right to life as citizens of India, but is also a violation of international law, as attainable health is included in the international covenant on economic, social, and cultural rights (Palavalli, et al, 2017). The take-away from this assessment is that its not an improved situation based on the fact that Ejipura evictees are accessing water because they are willing pay the monetary price. What it does it puts Ejipura evictees at further risk because they are deciding to access water over health care services, which can put them into the situation of being vulnerable to a health shock.

Figure 18: The average monthly healthcare expenditure: before and after the eviction (Palavalli et al, 2017).
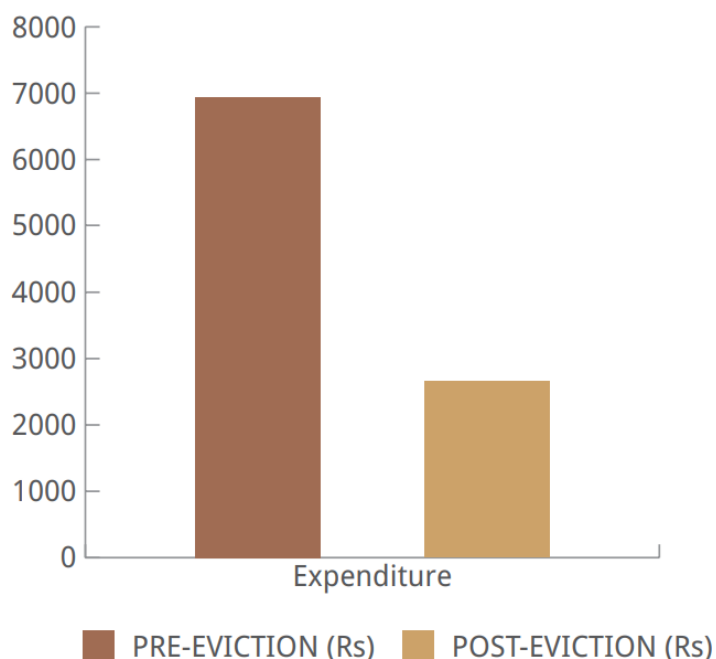
8. Discussion

The problem that this thesis focuses on is the impact a lack of access to water has on the livelihoods of residents living in non-notified informal settlements of Bangalore. Living in a rapidly urbanizing city, like Bangalore, runs the risk of many people falling into a non-notified status. My study demonstrates the problem through the theory of socio-spatial injustice as the basis for the limitation of accessibility to water in Bangalore and thereafter having an impact on the sustainable livelihoods of non-notified informal settlements. This thesis has found that a lack of inclusion in policy for non-notified informal settlements is grounds for social injustice by means of exclusion to the provision of water. Secondly, this thesis has found that a handful of rural to urban migrants, primarily Dalits, are living in a non-notified informal status because of an act of spatial injustice in the context of geographic uneven development. Finally, the thesis has found that the combinations of both circumstances, defined as socio-spatial injustice, has had an impact on the sustainable livelihoods of Ejipura evictees, who of which are living in a non-notified informal settlement. In line with the hypothesis of this thesis, that a lack of access to water has an impact on the sustainable livelihoods of non-notified informal settlements, an interpretation of the findings of this thesis will be discussed. The layout of this section will be in three parts. Each part will explain how the research questions have been answered by providing and explaining the significance of the data that has been collected.

8.1 Findings of social injustice via multilevel policy analysis on water

In this section the findings from the first part of the analysis will be used to answer the questions of social injustice via the concept of exclusion. For reference, social injustice is the unjust distribution of benefits (Bufacchi, 2012), such as water, health services, transportation, housing, etc. The concept of exclusion is applied as a basis for an explanation of a lack of access to water for non-notified informal settlements in Bangalore. As a reminder exclusion is the "actions or policies undertaken to exclude others as legitimate recipients of the distribution of [benefits] … [that is] experienced by either individuals or groups" (Bufacchi, 2012, p.10). The inquiry into social injustice asks – *What is policy on water, at the international level, national level in India, and state level in Karnataka saying to include or exclude populations from access to water?* Three questions are then asked in the multi-level policy analysis which is addressed in the following section along with the findings in the analysis.

International level policy analysis findings

       The objective of this part of the discussion is to demonstrate the finding from the analysis which support inclusion of access to water on the international and national level, and thereafter a demonstration of findings that expose the act of exclusion to the accessibility of water from policy on the local level in Bangalore. The first question in the analysis is aimed to explore inclusion of access to water via policy on the international level. The question that's asked is, *what is the position and initiatives of the United Nations on the rights to water and what are water rights activist, and international development practitioners saying about the importance of access to water?* The initiatives of the United Nations suggest that water is a natural resource that should be readily accessible for all populations (UN, 2012). The initiative of the Sustainable Development Goals (SDG's) approach to creating a more sustainable environment includes a proponent that addresses the accessibility to water. Goal number 6 ensures availability and sustainable management of water and sanitation for all (UN, 2012). The use of the word *all* is vital to the act of inclusion, because it supports the accessibility to water for all people – individuals and groups. Furthermore, to ensure that *all* are included to the availability of water is seen in the first target of goal 6, which address universal and equitable access to safe and affordable drinking water for *all* (UN, 2012). The findings that support safe, affordable, universal and equitable help support the inclusion to water in the international arena. Safe water is a proponent of inclusion because it addresses the fact that many informal settlements do not have access to safe drinking water, and thus are exposed to unsanitary water. Affordability, is a critical variable of inclusion to the accessibility of water. Findings, such as the WHO definition on affordability ensures that water does not exceed the limits of what a person can afford. Placing a cap on what water should cost allows access for all populations, including the poor. Finally universal and equitable access to water is a strong and valuable component to the inclusion of access to water. Particularly support from human rights activist via their justification of equitable access protects access to water for all populations such as indigenous populations and women, two groups of people that are commonly left out without access to water. Therefore, with equal rights to water, individuals nor groups of people are being excluded from accessing water. Finally, resolution 64/292 enhances the importance for the inclusion to water. Resolution 64/292 states that clean water and sanitation is a human right. That means that marginalized groups of people and individuals, have their rights protected when it comes to their inclusion of accessibility to water.

The second question focuses on how policy on the national level plays a role in the inclusion of accessibility to water. The question asks, *what is India's National Water Policy and what legal cases prove that there is a legal protection for the right to water?* The position of the national water policy on water is that water is a basic human need (CWC, 2021). Furthermore, in 2012 a review of the policy included a need to be more attentive to the accessibility to safe water for drinking and other domestic needs (CWC, 2021). In both ways the inclusion of water is obvious when it is stated as a basic human need. Findings in the analysis support water as a basic human need in three legal court cases argued via article 21. Article 21 states that "no person shall be deprived of his life or personal liberty except according to procedure established by law" (Jain, 2015). Access to water has been protected where natural water sources for Indian populations was polluted. Thus, no matter the individual or group, each person is experiencing inclusion because the natural water source is a means to their right to life. On the local level, many people are excluded from accessing water, which is arguably their right to life via article 21 of the Indian constitution. Therefore, the third part of the analysis, aimed at exploring the local level of access to water, asking – *what is Karnataka's state water policy and what is its application when facing the accessibility of water for non-notified informal settlements?* The answer is that the application of its water policy depends on the status of the informal settlement. My findings on the analysis support this answer by confirming that a non-notified status means no access to the provision of water. Therefore, specific groups of people and individuals are being excluded from access water, solely because of their status as a non-notified informal settlement. The exclusion of access to water for residents that are living in Bangalore conflicts with the assertations of Lefebvre (1972). Lefebvre (1972) says that inhabitance in a city ought to be a basis for their rights, in lieu of any formal status. Thus, according to Lefebvre (1972) a resident of Bangalore should be able to access water as their entitlement to the rights of the city.

8.2 Findings of spatial injustice via geographic uneven development

The intention of this part of the discussion is to exhibit my findings from the analysis which support the proposition of spatial injustice for groups of people in Bangalore via geographic uneven development. The analysis focused on geographic uneven development is divided into three different areas reasons for rural to urban migration, and rights to the city amid rapid urbanization. To grasp the character of Bangalore the sub-question asks, *what are the*

initial factors that play a role into migration to Bangalore and what influenced an unequal distribution of wealth, people, and resources? The character of Bangalore is what most people already know or read about, that it is the 'Silicon Valley' of India. The city is marked with tech-oriented companies led by business tycoons that are equipped with tech-savvy employees. It is safe to say Bangalore is a city that offers opportunities of employment to the highly educated in the tech industry. However, besides the high-tech jobs are the are unreliable employment opportunities in Bangalores informal job market sector.

Findings on the realities of rural to urban migration

To begin seeking the answer to this question, it is asked *what are the forces of attraction for rural to urban migrants and what are academics, and artists doing to illustrate the hardship or rural to urban migrants?* Findings my analysis support that there is a percentage of residents in Bangalore that have migrated from a rural context because of the threshold approach and 'push-pull' factors. Data collected is significant because it shows that people have decided to move to Bangalore because of the resources that the city has to offer, such as better job opportunity, increased levels of income, or educational opportunities. In addition, the decision is put into action because of social networks, such as family ties, that rural migrants can depend on when they are living in Bangalore. The concept of rural to urban migration is supported with findings of art that shows the difficulties that many people face. No matter the direction, especially during the covid-19 pandemic many migrants faced life threatening circumstances. In another way the importance of the data shows the lack of rights to the city for internal migrants. Either way, what is critically pointed out is that internal migration for hopes to better one's life is difficult and comes with hardships.

Findings of spatial injustice via rights to the city for rural migrants

A question of rights to the city for rural migrants puts center stage the experience of spatial injustice amid one's ability to access water via geographic uneven development. The question that is asked to explore this phenomenon is *What is rapid urbanization in Bangalore and what rights to the city do the Dalit's have amid development of concentration points in Bangalore.* My analysis tackles the phenomenon of a lack of access to water by focusing on the impact a fairly large commercialized development project had on rural migrants, primarily the Dalit's in Bangalore. Sadly, the data collected highlighted that their rights to the city, one can say, are non-existent. The importance of this data in this section of my analysis supports spatial injustice via geographic uneven development by presenting findings on an unequal distribution

of wealth, people, and resources. It is critical for the thesis to present this information because it supports that an unequal distribution of wealth influence the decision-making process which led to the destruction of Ejipura. An unequal distribution, in the case of the Ejipura evictees coincides with the assertation of Lefebvre (1972). Lefebvre (1972) says that there is a right to participation, meaning that citizens should play a role in the decision that contribution to the production of space. Ejipura evictees where not given the chance to play a role in the decision making of the development of a shopping mall, and thus were pushed out of their homes. Importantly an unequal distribution of people is supported by data that reveals a large amount of people that had to live in informal settlements. Also, my data shows that post eviction, a lack of access to resources plays a role in the lack of access to Ejipura evictees that are living in informal settlements. Unfortunately, the consequences of this particular injustice were life threatening for many people.

8.3 Findings of the impact on sustainable livelihoods of informal settlements

Transforming processes and shocks from the vulnerability context

The purpose of the section of analysis that explores the sustainable livelihoods of non-notified informal settlements is to humanize the realities of what it is like to live with a lack access to water. My analysis puts to use the sustainability framework by dividing the section in four parts: transforming structures and processes, shock via the vulnerability context, livelihood assets, strategic livelihood, and the livelihood outcomes of non-notified Ejipura evictees. The first part of this section of the analysis is a point of departure that sets the stage for a lack of access to water. Exploration of the initial cause of a lack of access to water begins by asking, *what impact does transforming processes and structures in Bangalore, such as policy, have on Ejipura evictees?* Mhe data collected in this part of the analysis reiterates the section on exclusion to access of water by reminding that non-notified Ejipura evictees that are living in informal settlements do not have the right to the provision of water, thus exposing them to the lack of access to water. Although this fact holds great relevance, the question that follows begins to answer if Ejipura evictees are experiencing a sustainable livelihood. Therefore, the following section probes at the experience of a shock via the vulnerability context. The question here asks, *what shocks are experienced in the context of vulnerability because of the influence from policy?* The data collected reveals Ejipura evictees experienced health shocks that are closely linked with a lack of access to water, such as fever, diarrhea, and high blood pressure. The emphasis for bringing attention to health issues is to make it known that these issues prevent people from participating in their daily activities, such as working, going to school,

cooking, cleaning, and fetching water. In combination with health issues are more issues that arise which impact the ability to maintain a sustainable livelihood.

Livelihood assets

When there is a lack of access to water the only option is to depend on the assets that can act as a means to access water. All over the world, where there is a lack of access to water, people depend on different assets, in the forms of physical and social capital, such as modes of transportation, family networks, buckets, and water centers that provide access to water, and religious institutions. In this section of the analysis the various types of assets that are available to Ejipura evictees are explored. The question that is asked to begin the investigation is *how do livelihood assets, like physical and social capital impact Ejipura evictee's ability to access water?* The first form of assets that are absent from their lives is physical capital, that being actual infrastructure that can provide access to water to their household. This is not referring to the ideal situation of running water into their homes, but the absence of nearby taps or any other form of provision of water that they can easily access. My data collection has revealed that Ejipura evictees living in a non-notified status, thus need to walk long distances, sometimes at night to access a public facility for access to water. The value of this data to the thesis is the opportunity to discuss that having to walk long distances, especially at night, is not safe. Women, men, and children are exposed to the dangers of the public and can result in being victims of crime. More so, and more relevant, venturing into a public space runs the risk of catching covid-19, whether or not they are vaccinated.

Social capital as an asset also plays a role into the ability for one to access water. The data collection on the social capital available to Ejipura evictees revealed that households depended on their membership of a religious institute to provide access to water. Its critical to note that even though there is a membership to religious institutions members still need to pay to use the water for bathing or for drinking. If one cannot afford the means to access water via their religious institution, then they lose one of the few opportunities they have to access water. The other form of assets available to Ejipura evictees living in an informal settlement are the social networks which can provide access to water. In the case of an evicted Ejipura family access to water depends on a nearby relative. The importance of mentioning this form of capital is to bring to light that it is not a sustainable source of access to water. There is a possibility that something can happen to the nearby relative and thus may not be able to supply water to the Ejipura evictee family. Without access to water, they are also exposed to being victims of health shocks that are linked to a lack of access to water, such as fever, high blood pressure, and

diarrhea. The point that is being made here is that with or without the capital there needs to be sustainable access to water, else families are at risk of health shocks.

Livelihood strategy and reduced vulnerability

To understand the scope of the impact on the sustainable livelihoods of Ejipura evictees we need to observe the pressure on the decision-making when not having access to water. As a point of departure, the essence of time is used to learn about the pressure that is put on the shoulders of poor populations when dealing with a limited amount of time and the decisions of what benefits are essential to access. The concept of 'time poverty' is applied to acknowledge that poor populations are overwhelmed with so many events in their life that they do not have time to rest or for leisure. Ejipura evictees are experiencing life changing events such as eviction, and thereafter a lack of access to water. If there is an inability for rest or leisure, then it is likely there is an inability to allocate time for other activities to help improve their access to water. For example, if one parent spends a majority of their time caring for their family, and the only free time available is spent on fetching water, then there is no time for employment. If the family is fortunate enough to have a second part, then the income that the family is surviving on is from one parent. A single and possibly unsustainable income limits the purchases a family can make to access the resources that they need such as water.

What question can we ask to investigate their livelihood strategy and the outcome of the strategy to understand the impact on the sustainable livelihoods of non-notified Ejipura evictees? The question to ask is *what livelihood strategy is undertaken after being evicted from Ejipura?* A coping strategy is usually undertaken which influenced the decision of what resources to access when there is a limited amount of time and money. The point of mentioning a coping strategy as the livelihood strategy in my analysis is because it brings to light the relationship between the time that a person has when they do not have access to water and the space (provision of water) they are given to access it. Thus, the remaining question ask, *is it true that Ejipura evictees are experiencing a reduced vulnerability when lacking access to basic service, like water and health services?* The data collected in this part of the analysis reveals the increase in payment of basic services, particularly water, whereas there is a decrease in payment for health services. This means the coping strategy is to buy water before spending money on health services. Thus, it's imperative to put forth that the opportunity to an sustainable livelihood is impacted because of an increased vulnerability to a health shock. A lack of payment towards health care services means a lack of treatment for an illness that may be contracted. Without the proper medical services people are not properly diagnosed and treated.

The lack of treatment means that they need to care for themselves, which restricts them from being able to participate in any of their daily activities. Thus, the life of an Ejipura evictee living in a non-notified informal settlement is not sustainable because they cannot recover from a health shock due to the lack of resources that are available to them.

9. Conclusion

A revisit to my conceptual model as an introduction to my conclusion

Access to water is a topic in this paper that highlights the various dimensions of social and spatial concepts in Bangalore and, possibly, in many other regions where access to water is an issue. In the particular case of my thesis inequality is highlighted for underserved populations that have relocated to Bangalore for better access to life's essential needs, such as water, education, transportation, employment, and health services. Water in this case is a variable that reveals a lack of inclusion into policy for people that are living in Bangalore. Water in another way opens up the realities that one faces when they move to Bangalore and are living in low-income housing. From a turn of events their rights to the city are truly tested when it comes to their ability to access housing, and more so water when they do not have any housing. The loss of a resource that holds such a high importance for human existence shines when I uncover the loss opportunity for a sustainable livelihood. In moments of hardship in this kind, limits the decisions one can make to better themselves, resulting in deciding between basic health care services and water. In the following sections I want to offer a summary of this thesis, followed by key points from my research, and further areas of research, derived questions, policy recommendations, and my reflection on from my thesis.

9.1 A summary on the lack of access to water & the impact on sustainable livelihoods

My thesis has provided an investigation into the dimensions of socio-spatial injustice that exist in Bangalore and how they have an impact on the lack of access to water. Furthermore, my thesis analyzes the impact a lack of access to water has on the livelihoods of residents that are living in non-notified informal settlements in Bangalore. Social injustice in Bangalore is not as explicit as the Jim Crow laws in the southern region of the United States. The language of those laws explicitly prevented a group of people, based on them being African-American, from my homes from 'white' Americans. Thereafter, obstructing their ability to access water. In Bangalore however populations that commonly occupy informal settlements are predominately of the Dalit caste and continue to suffer from the lack of provision to water in Bangalore.

Events of geographic uneven development in Bangalore uncover the experience of spatial injustice by means of an unequal distribution of wealth, people, and resources. In Mexico the events of spatial injustice can be chalked up to poor urban planning, and thus resulting in a

shortage of water in the aquifers leaving many Mexicans without access to water. In Bangalore however the actions of key decision makers in politics and commercial development fueled the degree of unequal distribution of wealth, people, and resources. Geographic uneven development left many people without basic services such as the provision of water, health services, and toilets. These resources play a critical role into how families are able to live a sustainable livelihood.

The ability to live a sustainable livelihood in Bangalore for residents in non-notified informal settlements is nearly impossible considering the circumstances they are experiencing. Continuous shocks, such as health shocks or economic shocks like we have seen in the Ejipura eviction present a range of issues that make it difficult for a person to recover from. Key variables such as a natural resource, like water, can make all the difference to a person being able to recover and sustain their livelihoods. However, when these key variables are missing, not only water, but access to basic services, the ability to sustain a livelihood becomes much more difficult. Difficulty sets in when there is a need to decide between the time available in one's day and space given, such as access to basic services, to sustain a livelihood. The decision-making process is under pressure, and thus access to basic services start to outweigh one-another, leaving the person at risk from accessing all the basic services they need to sustain their livelihood.

9.2 Key points from my research

The concept of social injustice is highly relied on as an opening to an unjust distribution of benefits by the means of policy that has excluded Bangalores residents from the accessibility to water. The point of take-away at this moment is that policy in Bangalore excludes segments of its populations from accessing water by failing to include *all* of its populations in its provision of water. At many levels of government acts of inclusion in policy provide access to water. The United Nations clearly states that water should be safe, affordable, universal and equitable for *all* populations. In the analysis of my thesis the importance of inclusion to the accessibility of safe water for all populations is backing with statistical data of populations what have a history of water-borne illnesses. From 1990 until 2018 80,000 children have died from unsafe water, and 300,000 people of age 70 and older have died from unsafe water (Bernadeta et al, 2018). In India, on the national level, inclusion to water continues to exist via defense of an Indian citizen's 'right to life'. Water has been argued in three court cases as a crucial natural resource for a person's right to life. Importantly, the use of water for a person's right to life stands for *all*

Indian citizens, thus paving the way of inclusion to access water. On the state level inclusion in policy to access water is not fully met like it is on the international and national levels in India. In Karnataka populations that are living in non-notified informal settlements are not defended in their right to the provision of water. On the state level a portion of Bangalores population does not have access to the provision of water. Since not all of Bangalores, population can enjoy the provision of water supports my claim that there is a degree of exclusion to water in Bangalore, Karnataka.

I engage further on the reality of a lack of access to water through the concept of spatial injustice, by asserting an unequal distribution of wealth, people, and resources in Bangalore. The take-away from this portion of the analysis is that the Dalit population in Bangalore experienced an unequal distribution of space which has played a role in their inability to access water in Bangalore. In Bangalore there is a mix of highly-educated personnel working in the tech industry. On the other hand, areas such as the Kurubarahalli neighborhood in Bangalore, support an influx of rural migrants to work in Bangalores informal market place. Many of the Dalits arrive from far-flung rural villages to work in Bangalores informal market. Secondary data in my analysis shows that many Dalits have moved to Bangalore for higher levels of income, better job opportunity, and because of their ties to social networks in Bangalore. However, the focal point of this section is to understand how the Dalit population that has arrived in Bangalore has ended up lacking access to basic services like water. I use the Ejipura eviction to highlight specific events that has led to this inequality. My data shows that there were strong ties in the public and private sector that approved the demolishment of Dalit homes on the outskirts of Bangalore. Upon the destruction of their homes, there was no safety net of alternative forms of shelter for Dalit's that where soon rendered homeless. People scattered throughout the city, some of which resorted to living in informal settlements on the outside of the Ejipura eviction. Once living in the inhuman environment of an informal settlement Ejipura evictees were left with a lack of access to basic services, such as water. Consequently, people had to pay to access water, walk long distances, or resort to social networks.

The third component of my analysis reveals the link between a lack of access to water and the role it plays into a person being able to have an opportunity to a sustainable livelihood. The take-away here is that it's not possible to have a sustainable livelihood when there is an absence of a natural resource, such as water, in a person's life. In my analysis data is provided to highlight the shocks that are experienced by people that are living in informal settlements without access to water outside of Ejipura. A doctor that visited households in informal settlements outside Ejipura has reported that many people suffer from water related health

95

issues such as fever, diarrhea, and high-blood pressure. These particular health shocks are not easy to recover from without access to water, thus making it difficult for a person to have the opportunity to live a sustainable livelihood. More so, the circumstances that they are living in does not give them the proper capital to access water. People are left with no toilets that have water, and no nearby taps to access running water. This means that people living in an informal settlement must walk long distances in public, sometimes at night, risking them from being victims of crimes or catching Covid-19. Without these different forms of capital, a person does not have an opportunity to access water to help them recover from a shock to their livelihood. For people that are living under the conditions of lack of access to basic services, like health and the provision of water, often find themselves under the pressure of decision making. The series of events they are experiencing leads them to prioritize which basic service they will access, sometimes water over health. Without a basic service like health then they are incapable of recovering from a health shock to live a sustainable livelihood.

9.3 Further areas of research, derived questions, and policy recommendations

Furthered areas of research

It is critical to note that the applicability of this research does not cover all corners of why there is a lack of access to safe water in Bangalore. Areas of urban planning can be explored via spatial injustice to gain an in depth understanding of the quantity of natural water that is available for the residents in Bangalore. Particularly, further investigation needs to be, and should be, conducted on the policy that impacts access to water, as well as policy on the rights of Indian citizens that are living in Bangalore. Based on the findings of this thesis academics and international development practitioners should scrutinize the aspired achievements of the Sustainable Development Goals of the United Nations. If water is to be considered safe, affordable, universal and equitable then how is that applied on the local level where access to water is controlled through municipalities? Further research can investigate the capacity that the international arena has on implementing the policy to ensure that water is accessible to everyone. Spatial injustice is also a platform to work off to understand the rights to the city and how that impacts accessibility to water. Scholars can use this as a way to investigate the unequal distribution of wealth, people, and resources. Questions such as what type of oversight exist in the power dynamics of local level politics when it comes to the distribution of resources, like water? How are rights to the city perceived amid rapid urbanization in Bangalore? What this thesis does is offer a contribution to the effects of socio-spatial injustice on the lack of access to water and the impact it has on sustainable livelihoods in Bangalore. The conceptual framework

is a unique path that can be applied to all avenues of research on policy and the unequal distribution of resources and services.

Derived questions from my research

From my thesis I have put together a few leading inquires for future research on the phenomenon of a lack of access to water. Further questioning on the topic of social injustice can be posed to continue the investigate on the lack of access to water. A question that researchers can ask is - *what role do international organizations play in their capacity of authority when implementing their initiatives of access to water on the state level?* There are several methods of research that can be used to analyze the data collected for this question. Inspection of the role of international organizations in cooperation with state level politics could be possible by conduct a longitudinal experiment as a method of research. The analysis can focus on the time line of an international organization by focusing on key points of its development in relation to targets it has on the phenomenon of access to water. In connection an evolution of state policy can be analyzed by focusing on the levels of cooperation it has with an international organization to improve accessibility to water. A unique perspective can be developed to understand the cooperation between the international arena and state level politics. Furthermore, a qualitative study can be conducted as a content analysis of the implementation of the specific initiatives that the international organization has within the state that it is cooperating with.

There are also derived questions from my research that can be useful to engage in the topic of spatial injustice on the phenomenon of access to water. A question that researchers can ask is – *Does class, race, and gender make a difference in a person's ability to access water and how are there marginalized groups of people that lack access to water in Bangalore?* Different methods of research can be used to analyze the data collected for this research question. Research investigating this question can use a people-centric quantitative form of research. A survey can be conducted to gain a perspective of exactly which people are experiencing a lack of access to water. In addition, qualitative research in the form of a content analysis can be conducted to understand the marginalized groups in Bangalore. The information collected can bring a perspective on what marginalized groups in Bangalore exist and which groups of people, based on their class, race, and gender are experiencing a lack of access to water.

More questioning can be derived from my thesis to gain an insightful perspective on the livelihoods of people that are experiencing a lack of access to water in Bangalore. A question that researchers can ask is – *are a lack of basics services, like the provision of water, impacting a person's ability to recover from a shock and are the shocks they are experiencing depleting their natural resource base?* A study into this inquiry can have a variety of methodological approaches that can provide a unique perspective. A researcher can conduct a quantitative analysis of the correlation between the shocks that are experienced of people that are exposed to a lack of access to water. Furthermore, a longitudinal investigation into the use of their natural resource base can be analyzed to understand the use of their natural resources over a certain period of time. Both segments of the data collected can be used together to pinpoint experienced shocks from a lack of access to water and the use of their natural resource base.

Policy recommendations

From my research I have found several areas of policy that can be recommended. First, I would like to put forth a policy recommendation that I believe could be of help to reduce the chances of social injustice in Bangalore. My recommendation is that policy on the provision of water in Bangalore should be written to include populations regardless of the status of their household. Variables such as where a person lives or the conditions of which they are living will not play a role into their right to access basic services, like the provision of water. Policy written in this way is vital to social justice because it plays a role in ensuring that *all* populations have a right to access water in Bangalore. In addition to lessening the experience of social injustice is policy that can be formed to prevent a person's exposure to spatial injustice. Working of Lefebvre (1972) right to the city, I would like to recommend policy for rural migrants that are newly arrived to Bangalore. I will recommend that policy protects the rights of newly arrived migrants to access basic services and resources of the city, such as housing. The formation of said policy can prevent legal rulings from titling new arrived migrants at 'encroachers' that do not have a right to their housing in Bangalore. Policy in this form can safeguard resources and services in Bangalore for *all* of its population. Furthermore, policy can be recommended to protect the livelihoods of people that do not have access to the provision of water in Bangalore. I recommend that policy if written so it includes free access to basic services for populations that are experiencing environmental, physical, or economic shocks to their livelihoods. Policy formed this way can act as a safety net to help people recover from a shock that is out of their control. A policy like this can lighten the pressure a person is undergoing and thus allow them to improve their decision-making process to be able to access water. In result it will lessen the need to deplete their natural resource base and allow them to pursue a sustainable livelihood.

9.4 My final reflection on the thesis

I can say that this project has been a learning experience that will last a lifetime, in my personal and professional endeavors. From the outset of journey, I envision myself living in India, connecting with the local populations to connect on the topic of access to water. However, life for had a sudden turn, not only for me, but for the entire world. I was met with barriers of solitude, much for my own safety and for the safety of others. The environment put me into a far cry from what I imagined what I would be doing as junior researcher in my Master's program. However, I swallowed the pill of finite disappointment and pursued infinite hope in the new creative measures I could learn to pursue my research. I learned to look beyond the computer as a resource that gave me access to essential data, but more so as a tool that provided a means to be as possibly as involved as a could be in times of the Covid-19 pandemic. I came to terms with this new approach to by looking at creative methods of analysis. I discovered webinars online that substituted the ability of being at a conference in person. In addition, I turned to different forms of art as an expression for me to analyze. This has left me satisfied to get as close in touch with the populations I was seeking to learn more about. Across the barriers that I overcame I learned to look at research in a more creative fashion.

References

Anand, S. (2021, July 15). Tech hiring is booming in India. SHRM. Retrieved September 12, 2021, from https://www.shrm.org/resourcesandtools/hr-topics/global-hr/pages/india-tech-hiring-is-booming.aspx.

Admin, S. (2009, April 17). Hardeep Puri to be NEXT Permanent representative of India to UN. https://www.oneindia.com. https://www.oneindia.com/2009/04/17/hardeeppuri-to-be-next-permanent-representative-of-indiato.html.

Alhassan, H., & Kwakwa, P. A. (2013). When water is scarce: the perception of water quality and effects on the vulnerable. Journal of Water, Sanitation and Hygiene for Development, 4(1), 43–50. https://doi.org/10.2166/washdev.2013.140

Back. (2019, January 28). Smart cities Retrieved October 2, 2021, from https://cps.iisc.ac.in/category/smart-cities/.

Bandyopadhyay, A., & Agrawal, V. (1981). Slums in India: from past to present. *Population*, *23*, 46-14.

BARLOW, M., Brannen, K., & Glynn-Broderick, K. (2008). AN INTERVIEW WITH MAUDE BARLOW. Journal of International Affairs (2), 237-244. Retrieved August 10, 2021, from http://www.jstor.org/stable/24358121

Bernadeta Dadonaite, Hannah Ritchie and Max Roser (2018) - "Diarrheal diseases". Published online at OurWorldInData.org. Retrieved from: https://ourworldindata.org/diarrheal-diseases

Black, J.,Hashimzade, N., & Myles, G. (2017). A Dictionary of Economics (5th ed.). Oxford University Press. doi:10.1093/acref/9780198759430.001.0001

Black, J. (1997). A dictionary of economics. Oxford University.

Blau, P. M., & Duncan, O. D. (1967). The American occupational structure. Link, https://eric.ed.gov/?id=ED066526

Bufacchi, V. (2012). Social injustice : essays in political philosophy. Palgrave Macmillan. Link: https://ru-on-worldcat-org.ru.idm.oclc.org/oclc/767824000

Bureau, Z. M. (2019, May 24). Lok Sabha election results 2019: Ec Declares results of ALL 542 SEATS, BJP WINS 303. Zee News. https://zeenews.india.com/india/live-updates/lok-sabha-election-results-2019-live-updates-bjp-narendra-modi-nda-2205806.

Calbreath, Dean (2010-05-30). "Hidden economy a hidden danger". Union–Tribune San Diego. Retrieved 12 September 2021. https://www.sandiegouniontribune.com/

Chandrasekaran, L. (1992). Social mobility among the Madiga of Karnataka. Sociological bulletin, 41(1-2), 119-144.

Chand, S. (2013, December 17). Intra state and inter state migration as seen in India. Your Article Library. Retrieved September 13, 2021, from https://www.yourarticlelibrary.com/india-2/intra-state-and-inter-state-migration-as-seen-in-india/19859.

Chaudhry, S., Rao, R. (2013). Governance by denial - HLRN. Retrieved October 15, 2021, from http://hrn.org/img/documents/Bangalore_Fact_Finding_Mission_Final_Report_June_2013.pdf .

Chethan Ranganath (2019, May 2). When finding a job became a nightmare in Bengaluru after Note ban, GST. Business Standard. Retrieved September 12, 2021, from https://www.business-standard.com/article/economy-policy/when-finding-a-job-became-a-nightmare-in-bengaluru-after-note-ban-gst-119050200125_1.html.

COHRE, A., & SDC, U. H. (2007). Manual on the Right to Water and Sanitation. COHRE, Geneva.

CWC. (2021, August 14). National Water Policy. Central Water Commission (Serving the nation since 1945). http://cwc.gov.in.

Dagdeviren, H., & Robertson, S. A. (2009). Access to Water in the Slums of the Developing World (No. 57). Working paper., Link: https://www.econstor.eu/handle/10419/71784

Dai, L., Wörner, R., & van Rijswick, H. F. (2018). Rainproof cities in the Netherlands: Approaches in Dutch water governance to climate-adaptive urban planning. International Journal of Water Resources Development, 34(4), 652-674.

Desai, R., McFarlane, C., & Graham, S. (2015). The politics of open defecation: informality, body, and infrastructure in Mumbai. Antipode, 47(1), 98-120., Doi: https://doi.org/10.1111/anti.12117

Devereux, S. (2001). Sen's entitlement approach: critiques and counter-critiques. Oxford Development Studies, 29(3), 245-263.

DFID. (2001, October). Issues issues sustainable livelihoods guidance sheets. Sustainable livelihoods guidance sheets. Retrieved October 11, 2021, from https://www.livelihoodscentre.org/documents/114097690/114438878/Sustainable+livelihoods+guidance+sheets.pdf/594e5ea6-99a9-2a4e-f288-cbb4ae4bea8b?t=1569512091877

Dicken, P. (2015). Global shift: mapping the changing contours of the world economy (7th ed.). Guilford Press.

Douglas, W. A. (2015, April 10). Poem: Rural migration to urban privation. SAIS Perspectives. Retrieved September 13, 2021, from http://www.saisperspectives.com/2015issue/rural-migration-to-urban-privation.

Dutta, S., Sinha, I., & Parashar, A. (2018). Dalit women and water: Availability, access and discrimination in rural India. Journal of Social Inclusion Studies, 4(1), 62-79.

Erin Cunningham, B. (2021, May 03). Covid-19 live Updates: India's VACCINE shortage to last months, top manufacturer warns. Retrieved May 04, 2021, from https://www.washingtonpost.com/nation/2021/05/03/coronavirus-covid-live-updates-us/

Farmbrough, H. (2019, March 15). Coca-Cola Reveals It Produces 3m Tonnes Of Plastic Packaging A Year In Ground-Breaking Report. Forbes. https://www.forbes.com/sites/heatherfarmbrough/2019/03/15/coca-cola-reveals-it-produces-3m-tonnes-of-plastic-packaging-a-year-in-ground-breaking-report/?sh=452aea9a670f.

Flyvbjerg, Bent. (2006) "Five Misunderstandings About Case-Study Research," Qualitative Inquiry, vol. 12, no. 2, April 2006, pp. 219-245.

Gettleman, J., Raj, S., & Yasir, S. (2021, April 14). In India, second wave of Covid-19 prompts a NEW EXODUS. The New York Times. Retrieved September 13, 2021, from https://www.nytimes.com/2021/04/14/world/asia/india-covid-migration.html.

Gennetian, L. A., & Shafir, E. (2015). The persistence of poverty in the context of financial instability: A behavioral perspective. Journal of Policy Analysis and Management, 34(4), 904-936. https://doi.org/10.1002/pam.21854

George, H. (1882). *Progress and poverty* (Vol. 142).

Gispert, M. Í., Hernández, M. A. A., Climent, E. L., & Flores, M. F. T. (2018). Rainwater harvesting as a drinking water option for Mexico City. Sustainability, 10(11), 3890.

Glaeser, E. L. (2013). Triumph of the city: How our greatest invention makes us richer, smarter, greener, healthier, and happier (an excerpt). Journal of Economic Sociology, 14(4), 75-94., Link: https://ideas.repec.org/a/hig/ecosoc/v14y2013i4p75-94.html

Google. (2021). Google maps. Retrieved September 16, 2021, from https://www.google.com/maps/place/Bengaluru,+Karnataka,+India/@12.9538477,77.3507442,10z/data=!3m1!4b1!4m5!3m4!1s0x3bae1670c9b44e6d:0xf8dfc3e8517e4fe0!8m2!3d12.9715987!4d77.5945627.

Government of India. (2021). Smartcities. Retrieved September 10, 2021, from https://smartcities.gov.in/.

Gurung, H. (2005). The Dalit Context. Link: https://www.repository.cam.ac.uk/bitstream/handle/1810/229114/OPSA_09_01.pdf?sequence=2

Haile, E. (2016, March 21). World's poorest spend the most on water. WaterAid US. https://www.wateraid.org/us/media/worlds-poorest-spend-the-most-on-water#:~:text=In%20Papua%20New%20Guinea%2C%20an,day%20to%20meet%20basic%20needs.

Hansen, T. B. (1999). The saffron wave. Princeton University Press. ISBN 978-0-691-00671-0.

Hasell, J. (2018, November 19). Is income inequality rising around the world? Our World in Data. https://ourworldindata.org/income-inequality-since-1990.

Howells, W. D. (1894). Are We a Plutocracy? The North American Review, 158(447), 185-196.

Hillmann, F. (2017). Martin van der velde and ton van naerssen (eds.) 2015: mobility and migration choices: thresholds to crossing borders. aldershot: ashgate. *International Journal of Urban*

and Regional Research, *41*(4), 704–706. https://doi-org.ru.idm.oclc.org/10.1111/1468-2427.12541

iijnmbangalore. (2015, February 3). Endless wait for Ejipura slum dwellers. YouTube. Retrieved October 1, 2021, from https://www.youtube.com/watch?v=XEsFPLffZTc.

India Covid: Hospitals overwhelmed as deaths Pass 200,000. (2021, April 29). Retrieved May 05, 2021, from https://www.bbc.com/news/world-asia-56919924

Indian Express. (2021, June 30) India's cities need to be sustainable, not smart. Retrieved September 10, 2021, from https://indianexpress.com/article/opinion/india-smart-city-mission-7383242/.

Jackson, E. A. (2020). Deconstructing sustainable livelihood framework (SLF) for equitable living in crisis of global pandemic.

Jain, R. (2015). Article 21 of the Constitution of India - Right to Life and Personal Liberty. (2015, November). Academike https://www.lawctopus.com/academike/article-21-of-the-constitution-of-india-right-to-life-and-personal-liberty/

Karnataka Maps. (2021). Retrieved September 16, 2021, from https://www.freeworldmaps.net/asia/india/karnataka/.

Karunananthan, M. (2019, August). Global water justice activists mobilize to keep WATER public in Switzerland. The Council of Canadians. https://canadians.org/analysis/global-water-justice-activists-mobilize-keep-water-public-switzerland.

Khurana, I., Mahapatra, R., & Sen, R. (2009). Right to water and sanitation. Mumbai: Water Aid India.

Ki-moon, B., & General, U. S. (2010). The Human right to water and sanitation. Media Brief at the United Nations General Assembly-28 July. https://www.un.org/waterforlifedecade/pdf/human_right_to_water_and_sanitation_media_brief.pdf

Kothari, J. (2016). The right to water: A constitutional perspective. http://www.ielrc.org/activities/workshop_0612/content/d0607.pdf

Krishna, A. (2013). Stuck in place: investigating social mobility in 14 Bangalore slums. The Journal of Development Studies, 49(7), 1010-1028. https://doi.org/10.1080/00220388.2013.785526

Krishna, A., Sriram, M. S., & Prakash, P. (2014). Slum types and adaptation strategies: identifying policy-relevant differences in Bangalore. Environment and Urbanization, 26(2), 568-585. https://journals-sagepub-com.ru.idm.oclc.org/doi/pdf/10.1177/0956247814537958

KSDB (2021). Abstract details of slums - karnataka slum development board (KSDB). 2021 Retrieved September 18, 2021, from https://ksdb.karnataka.gov.in/page/Slums/Abstract%20Details%20Of%20Slums/en.

Knoema (2021) Bangalore - India: Data and statistics. Retrieved September 18, 2021, from https://knoema.com/atlas/India/Bangalore.

Lamba, R. (2018, May 26). Case analysis: M.C. MEHTA v. union of India (shriram INDUSTRIES Case) By: Roopali Lamba. Latest Laws. https://www.latestlaws.com/articles/case-analysis-m-c-mehta-v-union-of-india-shriram-industries-case-by-roopali-lamba/.

Madur. (2019, July 20). Bangalore economic growth – the city to hit the highest gdp growth by 2035. Karnataka.com. Retrieved September 11, 2021, from https://www.karnataka.com/bangalore/bangalore-economic-growth-gdp-global-cities-report/.

MapsofIndia. (2021). Bengaluru (Bangalore). Retrieved September 16, 2021, from https://www.mapsofindia.com/bangalore/.

Martinez, J., Mikkelsen, C. A., & Phillips, R. (Eds.). (2021). Handbook of quality of life and sustainability. Springer.

Marx, B., Stoker, T., & Suri, T. (2013). The economics of slums in the developing world. Journal of Economic perspectives, 27(4), 187-210., DOI: 10.1257/jep.27.4.187 Link: https://www.aeaweb.org/articles?id=10.1257/jep.27.4.187

McVeigh, K. (2020, December 7). Coca-Cola, Pepsi and Nestlé named top plastic polluters for third year in a row. The Guardian. https://www.theguardian.com/environment/2020/dec/07/coca-cola-pepsi-and-nestle-named-top-plastic-polluters-for-third-year-in-a-row.

Medical west. (2021). The dangers of dehydration. Retrieved October 14, 2021, from https://www.medicalwesthospital.org/the-dangers-of-dehydration.php.

Miller, D. (1999). Principles of social justice. Harvard University Press.

Morudu, P., & Kollamparambil, U. (2020). Health shocks, medical insurance and household vulnerability: Evidence from South Africa. PloS one, 15(2), e0228034.

Murphy, M. L. (2001). The American Heritage® Dictionary of the English Language. Dictionaries: Journal of the Dictionary Society of North America, 22(1), 181-199

Narayana, R. (2012). No land in sight: impact of caste on slum communities' access to land in Bangalore, India https://nmbu.brage.unit.no/nmbu-xmlui/handle/11250/187864

Nnadozie, R. C. (2013). Access to Basic Services in Post-apartheid South Africa: What Has Changed?: Measuring on a Relative Basis. African Development Bank Group, Statistical Department.

Obrecht, A., Pham, M., Spehn, E., Payne, D., Brémond, A. C., Altermatt, F., ... & Geschke, J. E. (2021). Achieving the SDGs with Biodiversity. Akademie der Naturwissenschaften Schweiz (SCNAT), Forum Biodiversität Schweiz. https://www.researchgate.net/publication/349110621_Achieving_the_SDGs_with_Biodiversity

Osseiran, N. (2019, June 18). 1 in 3 people GLOBALLY do not have access to safe drinking water – Unicef, who. Retrieved May 06, 2021, from https://www.who.int/news/item/18-06-2019-1-in-3-people-globally-do-not-have-access-to-safe-drinking-water-unicef-who

Otto, B., Kuzma, S., Strong, C., & Chertock, M. (2020, April 8). *Combating the coronavirus without clean water*. World Resources Institute. Retrieved November 10, 2021, from https://www.wri.org/insights/combating-coronavirus-without-clean-water.

Page, V. (2021, May 4). How India makes money. Retrieved February 21, 2021., Link: https://www.investopedia.com/articles/investing/043015/fundamentals-how-india-makes-its-money.asp#:~:text=In%201991%2C%20India%20began%20to,the%20country%20leverages%20international%20trade

PayScale. (2021) Average salary in Bangalore, Karnataka. Retrieved September 18, 2021, from https://www.payscale.com/research/IN/Location=Bangalore-Karnataka/Salary.

Palavalli, B. M., Srinivas, B., Sil, S. (2017). Bengaluru's Continuing Inequality: An Eviction Impact Assessment of Ejipura/Koramangala Four Years After its Demolition. Bengaluru's continuing inequality - fields of view. Retrieved October 18, 2021, from https://fieldsofview.in/publications/eviction-ews/.

Pottinger-Glass C., Pfeffer K. (2021) A City for Whom? Marginalization and the Production of Space in Contemporary Bangalore, India. In: Martinez J., Mikkelsen C.A., Phillips R. (eds) Handbook of Quality of Life and Sustainability. International Handbooks of Quality-of-Life. Springer, Cham. https://doi.org/10.1007/978-3-030-50540-0_15

Piketty, T. (2018). Capital in the twenty-first century. Harvard University Press.

Proag, V. (2014). The concept of vulnerability and resilience. Procedia Economics and Finance, 18, 369-376.

Project, B. (2019, October 20). 10 extremely relevant facts about poverty in Bangalore. The Borgen Project. https://borgenproject.org/10-extremely-relevant-facts-about-poverty-in-bangalore/#:~:text=According%20to%20a%202017%20study,around%203%2C000%20INR%20(%2447)

Purohit, M. (1970, February 19). *Water untouched: A film on dalits' lack of access*. India Water Portal. Retrieved November 11, 2021, from https://www.indiawaterportal.org/articles/water-miles-away-dalits.

Puri, H. S. (2019, March 22). Water has sustained civilizations for ages. now is the time for civilizations to come together to SUSTAIN clean water. On #WORLDWATERDAY let us pledge to continue working towards providing clean & hygienic water to our citizens & ensuring that sources of water too remain clean. pic.twitter.com/v8GTO0DCYy. Twitter. https://twitter.com/hardeepspuri/status/1108960330632196097.

Puri, H. S. (2021, July 28). Clean potable water now flows from every tap in the holy & culturally rich city Of Puri.in a unique first in the COUNTRY, Puri now has 100% water tap connections with 24x7 drinking water supply. odisha leveraged ₹1,394 CR allocation under AMRUT to make this POSSIBLE. PIC.TWITTER.COM/U7L7DCFTRU. Twitter. https://twitter.com/hardeepspuri/status/1420323609189392391.
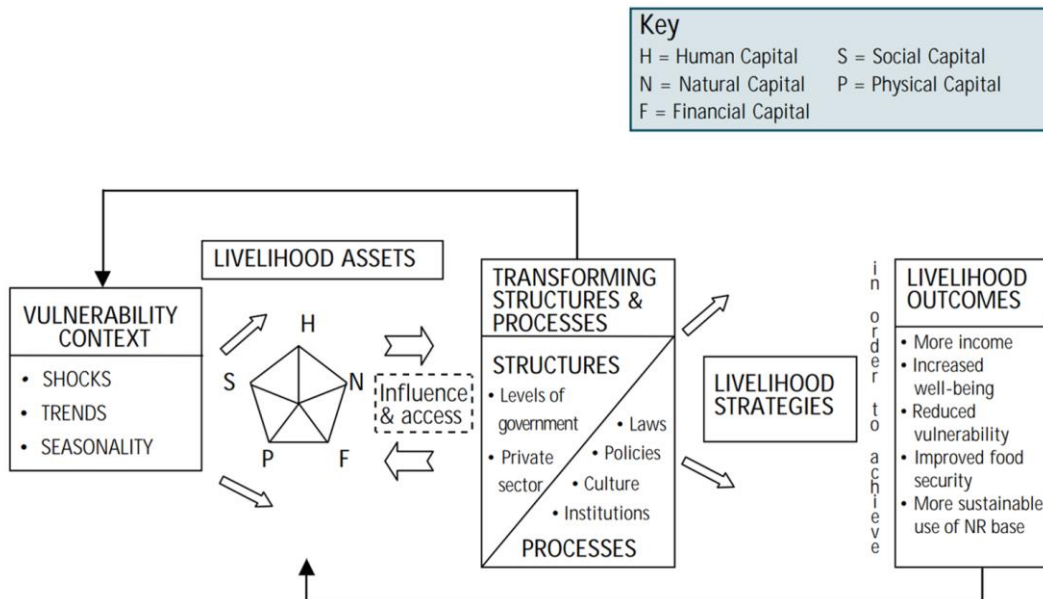
Rains, E. (2018). Urbanization and Indias Slum Continuum: Evidence on the Range of Policy Needs and Scope of Mobility (No. id: 12633). https://www.theigc.org/wp-content/uploads/2018/02/Rains-et-al_Working-paper_cover.pdf

Reserve bank of India. (2012). "Number and Percentage of Population Below Poverty Line". https://web.archive.org/web/20140407102043/http://www.rbi.org.in/scripts/PublicationsView.aspx?id=15283.

Ritchie, H., & Roser, M. (2018, June 13). Urbanization. Our World in Data. https://ourworldindata.org/urbanization#share-of-people-living-in-slums.

Rogers, S. (2009, March 9). Access to clean water. The Guardian. https://www.theguardian.com/news/datablog/2009/mar/03/access-water.

Sabharwal, Y. K., Sema, H. K. (2004, March 18). M.C. Mehta vs Union Of India & Ors on 18 March, 2004. indiankanoon. https://indiankanoon.org/doc/69408974/.

Sachs, J. D. (2012). From millennium development goals to sustainable development goals. The lancet, 379(9832), 2206-2211. https://doi.org/10.1016/S0140-6736(12)60685-0

Saha, D. (2021). VISUAL culture: INDIA'S migrant crisis. Kulture Shop. Retrieved September 13, 2021, from https://www.kultureshop.in/blogs/visual-culture/indian-migrants.

Samrun success story. The wait is finally over. (2021, January 28). Retrieved March 18th, 2021, link: https://www.waterforpeople.org/the-wait-is-finally-over/

Sen, A. (1981). Poverty and famines: An essay on entitlement and deprivation. Clarendon Press.

Sen, A. (1984) Resources, Values and Development (Oxford, Basil Blackwell).

Shira, Dezan. "Bengaluru: Economy, Industries, and Infrastructure." India Briefing News, 5 Feb. 2021, www.india-briefing.com/news/city-spotlight-bangalore-6371.html/#:%7E:text=Bangalore%20is%20home%20to%20a,%2C%20steel%2C%20and%20cement%20production.

Soja, E. W. (2009). The City and spatial justice. Justice spatiale/Spatial justice

Soja, E. W. (2013). Seeking spatial justice (Vol. 16). U of Minnesota Press.

Sridhar, K. S., Reddy, A. V., & Srinath, P. (2013). Is it push or pull? Recent evidence from migration into Bangalore, India. Journal of International Migration and Integration, 14(2), 287-306. https://doi.org/10.1007/s12134-012-0241-9

Srinivas, M. N. (2003). Religion and society among the Coorgs of South India. Oxford University Press., Link: https://ixtheo.de/Record/1605461849

Stanton, E. A. (2012). The tragedy of maldistribution: climate, sustainability, and equity. *Sustainability*, *4*(3), 394-411.

Steele, Gloria, YouTube. (2021). Webinar | Water Security, Sanitation, and Hygiene in a World Combatting Covid. YouTube. https://www.youtube.com/watch?v=zrPV-F5Kw1E&t=1345s.

Sudhira, H. S., Ramachandra, T. V., & Subrahmanya, M. B. (2007). Bangalore. Cities, 24(5), 379-390.

Thara, K. (2017). In troubled waters: water commodification, law, gender, and poverty in Bangalore. Gender & Development, 25(2), 253-268. https://doi.org/10.1080/13552074.2017.1341205

Troesken, W. (2002). The Limits of Jim Crow: Race and the Provision of Water and Sewerage Services in American Cities, 1880-1925. The Journal of Economic History, 62(3), 734-772. Retrieved May 25, 2021, from http://www.jstor.org/stable/3132554

Turner, B. S. (2006). The Cambridge Dictionary of Sociology. Cambridge university press.

United Nations (UN) (2012), Goal 6 | Department of Economic and Social Affairs. (2012). Retrieved July 23, 2021, from https://sdgs.un.org/goals/goal6

United Nations. (2010.). The human right to water and sanitation: United Nations. https://digitallibrary.un.org/record/687112?ln=en.

UNDESA. (n.d.). Hrw, decade, water for Life, 2015, UN-Water, United Nations, MDG, water, Sanitation, Financing, Gender, IWRM, human RIGHT, Transboundary, cities, quality, food security, general COMMENT, BKM, ALBUQUERQUE. Retrieved February 21, 2021., Link: https://www.un.org/waterforlifedecade/human_right_to_water.shtml#:~:text=On%2028%20July%202010%2C%20through,realisation%20of%20all%20human%20rights

UNDESA. (2014, May 29). International Decade for Action 'Water for Life' 2005 - 2015. https://www.un.org/waterforlifedecade/human_right_to_water.shtml.

UNECE. (2021, March 24). Equitable access to water and sanitation. UNECE. https://unece.org/environment-policy/water/areas-work-protocol/equitable-access-water-and-sanitation

UN General Assembly (2010). The human right to water and sanitation : resolution / adopted by the General Assembly, 3 August 2010, A/RES/64/292, available at: https://www.refworld.org/docid/4cc926b02.html

UN Habitat (2020) Water supply, sanitation, and Hygiene (wash) and COVID-19: CRITICAL WASH interventions for EFFECTIVE Covid-19 Pandemic Response. (2020). https://doi.org/10.1596/33688

UN Habitat. (2003). *The Habitat Agenda Goals and Principles, Commitments and the Global Plan of Action*. http://www.unhabitat.org. Retrieved November 5, 2021, from https://www.un.org/en/events/pastevents/pdfs/habitat_agenda.pdf.

Vice news. (2020, February 7). India is becoming its own Silicon Valley. YouTube. Retrieved September 10, 2021, from https://www.youtube.com/watch?v=YHVNWtBuDVk.

Vishwanath, S. (2014, November 7). The price of water. The Hindu. https://www.thehindu.com/features/homes-and-gardens/green-living/the-price-of-water/article6574600.ece.

Warf, B. (Ed.). (2006). Encyclopedia of human geography. Sage.

Water Resources Department (WRD), (2002). State Water Policy. Government of karnataka. (2002). http://waterresources.kar.nic.in/state_water_policy-2002.htm.

Welle, D. (2019). UN: One quarter of the world's health centers lack clean water: DW: 03.04.2019. DW.COM. Retrieved October 2, 2021, from https://www.dw.com/en/un-one-quarter-of-the-worlds-health-centers-lack-clean-water/a-48172963.

Wolff, R. D. (2012). Democracy at work: A cure for capitalism. Haymarket books

Wodon, Q., & Blackden, C. M. (Eds.). (2006). Gender, time use, and poverty in sub-Saharan Africa. The World Bank.

World Health Organization (WHO). (2017). Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines. https://apps.who.int/iris/bitstream/handle/10665/258617/9?sequence=1

World Population Review. (2021). Bangalore population 2021. Bangalore Population 2021 (Demographics, Maps, Graphs). Retrieved September 18, 2021, from https://worldpopulationreview.com/world-cities/bangalore-population.

World Population Statistics. (2021). Bangalore, India Population. Retrieved September 12, 2021, from https://populationstat.com/india/bangalore.

WorldWater. (2019, April 8). Top 10 countries with the worst water crisis. WorldWater & Solar Technologies. https://www.worldwatersolar.com/top-10-countries-with-the-worst-water-crisis/.

Appendices

Appendix I: Sustainable Livelihood Framework

Key
H = Human Capital   S = Social Capital
N = Natural Capital   P = Physical Capital
F = Financial Capital

Appendix II: Interview questions by the Journal of International Affairs with Maude Barlow

Question 1: Was there a turning point in your career when water really became an important cause for you, and how did that happen?

Question 2: Could you tell us more about your travels? How have you seen water scarcity impact the daily lives of people? Have you seen women impacted differently?

Question 3: In your book you discussed the role and impact multinational corporations have has on water availability and how they affect the daily lives of people. Could you discuss that further, specifically the role of multinationals and public-private relationships?

Question 4: Do you see an ideal role for business? If a government can't or won't step in to regulate, is it possible for business to profit while at the same time promoting conservation? Do you see a role for government and business to play together?

Question 5: You discuss in your book the connection between energy and water, for exxample, in an effort to develop alternative energies like biofuels, water is being greatly used. How do you think these competing needs can be met, in terms of alternative energy and conservation of water?

Question 6: You've discussed the role of governments in water security and sanitation. Could you highlight the role of nongovernmental organizations and international institutions, specifaclly the Millennium Development Goals (MDGs), in terms of water sanitation and accessibility to water? How effective do you think they have been?

Question 7: How do you think changing the language of the UN and the international community from that of a public good or human need to naming water a human right and putting it into writing, will affect outcomes? How important is this? Can a simple change in language impact policy and management?

Question 8: How do you see educational campaigns and media coverage affecting this movement? We just explored the exhibit on water at the American Museum of Natural History. Do you see this as being effective? What is gianed in that type of campaiging or education, either throughout the world or on a more local level?

Question 9: Do you have advice for students studying water management policy?

Appendix III: Poem on rural migration by professor William A. Douglas (Douglas, 2015)

In every developing nation,
We see rural-to-urban migration
Some say the city's lights lure with such charm,
That you can't keep the peasants down on the farm.
But for migrants, city life's not always pleasant-
It's the lesser evil, for the migrating peasant.

In American, life can be risky and hard,
If a migrant lacks that important green card.
In China, when to the big city you go,
You have no rights, with no urban *hukou.*
Such migrants are stuck in a risky hiatus-
De facto, they're urban, but without legal status.

With this torrent of migrants appearing within,
The city's resources are stretched very thin.
There aren't enough houses, or clinics, or schools,
Or electricity, sewerage, playgrounds, or pools.
On the hillsides the migrants in shanty-towns live,
Where life is hard, with few pleasures to give.

With urban life so rough and so grim,
Why do migrants keep wanting in?
The rural population continuously growing,
But there is no growth of land that's worth sowing.

So, each year we see more peasants on hand,
But they can't all be farmers, if some have no land!
And life in the country's not always rewarding,
So, the trains to the cities the migrants keep boarding.

Governments may try to stop the migrations,
With barriers and regulations.
China has the *hukou*, America a wall,
But the migratory wave slows hardly at all.
Some suggest reversing the flow:
The factories out to the peasants should go!
But this scheme of dispersed industrialization,
Is seldom applied in a developing nation,
Because it's thought to be an abomination
To forgo the "economies of conglomeration."

Since there is no way to hold back the tide,
The developing countries have got to provide
A better existence for those who arrive,
So they can live, and not just survive.
The migrants' appeals for help must be heeded,
And, of course, more funding is needed.
The migrants are neither lazy nor moochers-
With a bit of help, they will build their own futures.