CHAPTER I

INTRODUCTION

1.1   Background

Developing countries are facing urbanization coupled with a rapid and unprecedented urban growth, which is bringing about rising demand for urban services, especially those concerning in water supply. In 2018, 55% of the world's population lives in urban areas, a proportion that is expected to increase to 68% by 2050 (UN DESA, 2018). Significant population growth in urban areas faces limited access to water supply. Too many people still lack access to safely managed water supplies. In 2015, 29% of the global population lacked safely managed drinking water supplies. Ensuring universal access to safe and affordable drinking water for all by 2030 becomes the sixth goals in SDGs 2030.

The provision of ideal water infrastructure is still seen as providing a centralized piped network providing universal access to potable water. The most convenient water supply, which is standard for all urban dwellers in wealthy countries, is water piped into the house from a reliable piped-water network (Kjellén & McGranahan, 2006). Such supplies rarely serve the urban poor of Africa, Asia and parts of Latin America. In developing countries, many people are not served by the safe and affordable drinking water supply, especially the urban poor or low-income communities. As in Indonesia, the ideal urban water supply is considered by providing piped water network to all urban dwellers. But, the supply of water through piped water network usually does not reach urban poor areas.

The government inability to provide water supply for all urban dwellers has led to the emergence of informality in urban water supply. Swyngedouw (2005) states informality as a move to "governance-beyond-the-state", meant that non-state actors became more prominent in providing and organising services which previously were, at least on paper, the purview of the state. Roy (2012) argues informality can be seen as modes of governance. Water supply practices outside of governance by the government are considered as informal water supply.

Informality in urban water supply occurs in the form of water supply provided by informal water provider in varying size and scale which become predominant and fill water supply gap left by public utilities. Where water utilities do not reach the water demand, the water market is fragmented into a large variety of small (formal or informal) agents (Matsinhe et al., 2008). Collignon and Vézina (2000) calculate that informal and/or small-scale private water providers serve much of African, Asian and Latin American cities, while in some African cities they serve up to the 70–80% of urban population. It includes cases such as household water resale activities of

alternative service providers and small-scale independent providers in peri-urban areas of greater Maputo, Mozambique and small-scale private bottled water supply in Dhaka-Bangladesh. Another form of informal practices is pushcart water vendors in Delhi, India, and Manila, Philippines. Meanwhile, in Indonesia there is connection buy bulk water from their neighbors and utilization of shallow and deep groundwater managed by individual households using bore wells in Jakarta.

Services identified as 'informal' are associated with a large number of (contradictory) adjectives such as inefficient, expensive, complicated, traditional, unsustainable, or illegal. Far from being 'backward' or a survival strategy of the poor, such provision includes stable enterprises and dynamic businesses able to accumulate capital and economic development in many areas and sectors (Ahlers et al., 2013; Chen, 2007). Informal water providers are a viable option to be encouraged where the public or private utility still lacks the capacity to provide to all (UN-Habitat, 2003). The World Bank policy approach for informal water provision states this even more clearly, as informal providers are seen as a second best policy where the broader approach of making services work for all is not possible (World Bank, 2004, p. 177). Framed as complementary to utility water supply, informal providers are seen as particularly well placed to provide water services to the urban poor living in informal settlements (Njiru, 2004, p. 455), who – given their socio-economic status, or insecure land tenure, or legal status – are not yet able to be formal customers of the water utility (Asian Development Bank, 2003).

In the context of urban governance, informality in urban water supply as unofficial service provision is seen as a 'mode of urban governance' for the underserved population, which is largely allowed and even encouraged by governments because it is increasingly viewed as a necessary and acceptable mode of urbanism (Wutich et al., 2016). The persistence of informal water supply in developing countries and the absence of an urban infrastructural ideal is not a reflection of lack of development. Instead, informality continues to be produced through the particular factors other than physical availability of a network. Such a conceptual framework developed by Kooy (2014) illustrates how informality in the urban water supply sector can be understood not as a failure of the development to achieve the urban infrastructural ideal, but rather as a particular mode of urban development that is reliant on a range of informal practices in urban water supply.

Semarang City is one of urban areas with rapid urban growth in Indonesia. It is one of metropolitan areas in Indonesia with population approximately 1,7 million in 2018. The urban water supply in Semarang facing its challenges due to rapid urban growth, climate change, topographical challenges with hilly terrain and drought. PDAM (the city-owned water company) as the mandatory water utility in the city has not been able to cover all regions in Semarang. Based on data of BPS in 2018 the amount of household customer in PDAM is 147.326 household from total

household 424.628 in Semarang, which means PDAM only cover 34,7% from the demand in Semarang city. The rest of households fulfill their water needs through informal water supply in varying size and scale.

One of the cases which households fulfill their water needs through informal water supply happens in one of the areas in the northern part of Semarang which is Kampung Tambaklorok. Tambaklorok is a fishing village in Semarang located in coastal area. Households in Tambaklorok has been relying on informal practices to fulfill their water supply for decades. They rely on a range of strategies of informal water sources such as water vendors, tankers, and bottled water. The problem with this informal practice is the fact that the water supply may not be guaranteed safe and affordable. Meanwhile the main goal of water provision mentioned in SDGs 2030 is to provide safe and affordable drinking water.

The community of Tambaklorok has relied on the informal practice in urban water supply since the beginning of the development of this settlement in 1950. The community rely on informal practices because this settlement once is an illegal and undeveloped area. The condition caused the area can not be served by networked pipe. Later in 2016, Kampung Tambaklorok was installed with networked pipe by PDAM. Although the networked pipe has been connected, the residents still choose to use the informal water supply. From this phenomenon, it can be seen that the practice of informality in the urban water supply is not is not a reflection of lack of development. Instead, informality continues to be produced through the particular factors other than physical availability of a network. These particular factors beyond the physical availability of a network can be used as an input to provide an adequate and suitable form of water supply in a certain area or particular setting which in this case is Kampung Tambaklorok.

1.2 Research Problem and Question

One of the goals in SDGs 2030 is ensuring universal access to safe and affordable drinking water for all by 2030. Indonesian government through the Ministry of Public Works and Housing implements this goal into the 2015-2019 national mid-term program (RPJMN), then continues the target in the 2020-2024 RPJMN. The goal known as 100-0-100, it means the settlements must meet the standards of 100% access to drinking water, 0% percent of the area of urban slums and 100% access to sanitation (waste water, solid waste and drainage). The target of 100% access to drinking water in 2015-2019 achieves 87.8% of households that have access to drinking water (BAPPENAS, 2019). Hence, the continuation of the target in 2020-2024 RPJMN is to achieve 100% access to drinking water.

Semarang is one of the urban areas with rapid urban growth in Indonesia, its urban water supply is facing challenges due to rapid urban growth, climate change, topographical challenges

with hilly terrain and drought. The provision of urban water services in Semarang becomes the responsibility of local government through PDAM (the city-owned water company). Nevertheless, the PDAM have not been able to cover all regions in Semarang. The local government can not fulfill the demand for water. Consequently, the households in Semarang have heterogenous strategies to provide their needs of water. These heterogenous strategies to fill the gap between demand and supply of water causes the emergence of informal water supply.

The practices of informal water supply is also carried out by the community of Tambaklorok which located in the northern part of Semarang. The households of Tambaklorok rely on informal practices because this settlement once is an illegal and undeveloped area. This status makes this area could not be served by formal water provider which is the PDAM. Later in 2016, Kampung Tambaklorok was installed with networked pipe by PDAM. Although the networked pipe has been installed, the residents still choose to use the informal providers. Due to the regulation, the informal water supply in Tambaklorok which provide by the local water vendor can not be ensured as a safe and affordable drinking water. Meanwhile the 100% access to drinking water must be ensured that the water which provided is safe and affordable. This informal practices in Tambaklorok can not be categorized into the accomplishment of drinking water provision in Semarang.

The condition of the community in Tambaklork which tend to use informal water supply even though the formal networked has been installed shows that the practice of informality in urban water supply is not a reflection of development. Nevertheless, informality in water supply in Tambaklorok is a mode of governance. Informality continues to be produced through the particular factors other than physical availability of a network. These particular factors beyond the physical availability of a network can be used as an input to provide an adequate and suitable form of water supply in a certain area which in this case is Tambaklorok. Subsequently, it leads to the research question, "how informality in urban water supply remains to occur in Tambaklorok, Semarang?"

1.3 Goal and Objectives

The goal of this research is to understand factors that contribute to the existence of informality in urban water supply in Tambaklorok, Semarang. This goal is to be achieved through these followings objectives:

1. To analyze the service of networked pipe water supply (PDAM water supply) in Tambaklorok
2. To analyze the service of non-networked water supply (informal water supply) in Tambaklorok
3. To analyze the response from water utility (PDAM) in addressing the informal water supply in Tambaklorok

1.4   Research Contributions

This research is expected to give contribution to theoretical development to the dicipline of urban and regional planning and contribution at practical level in planning and policy making.

1.4.1 Theoretical Contribution

Expectantly, this research can contribute in producing a new knowledge that will compliment the existing theories and concepts regarding urban informality and informal water supply. Informality is a current phenomenon in the developing countries. The urgency of managing informality appears due to the significant urban transformations of the new century which takes place in the developing world. Informality is firmly cast as not only one of the key problems facing cities and urban dwellers, but also one of the major challenges to both long-standing and contemporary approaches to planning. Based on the study of the phenomenon of informality in urban water supply in the study area, it is expected to provide insight in theories of informality and urban water supply.

1.4.2 Practical Contribution

Through the findings in this study, it is expected to show how informality is produced in urban water supply in Tambaklorok. The community in Tambaklorok is one of the communities in Semarang City that choose informal practices in the provision of their water needs. Knowing how the service system informally in urban areas will produce corrective follow-up alternatives from the government and other stakeholders to increase public access to drinking water services. Thus, it can be an input for a better planning and policy making in the development of water supply in urban area.

1.5   Scope of Research

1.5.1   Study Area

The research takes place in Kampung Tambaklorok which administratively is RW 12-15 in Tanjungmas, North Semarang Subdistrict. Kampung Tambaklorok located in northern part of Semarang City in the coast of Java Sea. The land use in Tambaklorok majority consists of settlement and embankment with the area of the settlement is 9,19 Ha.
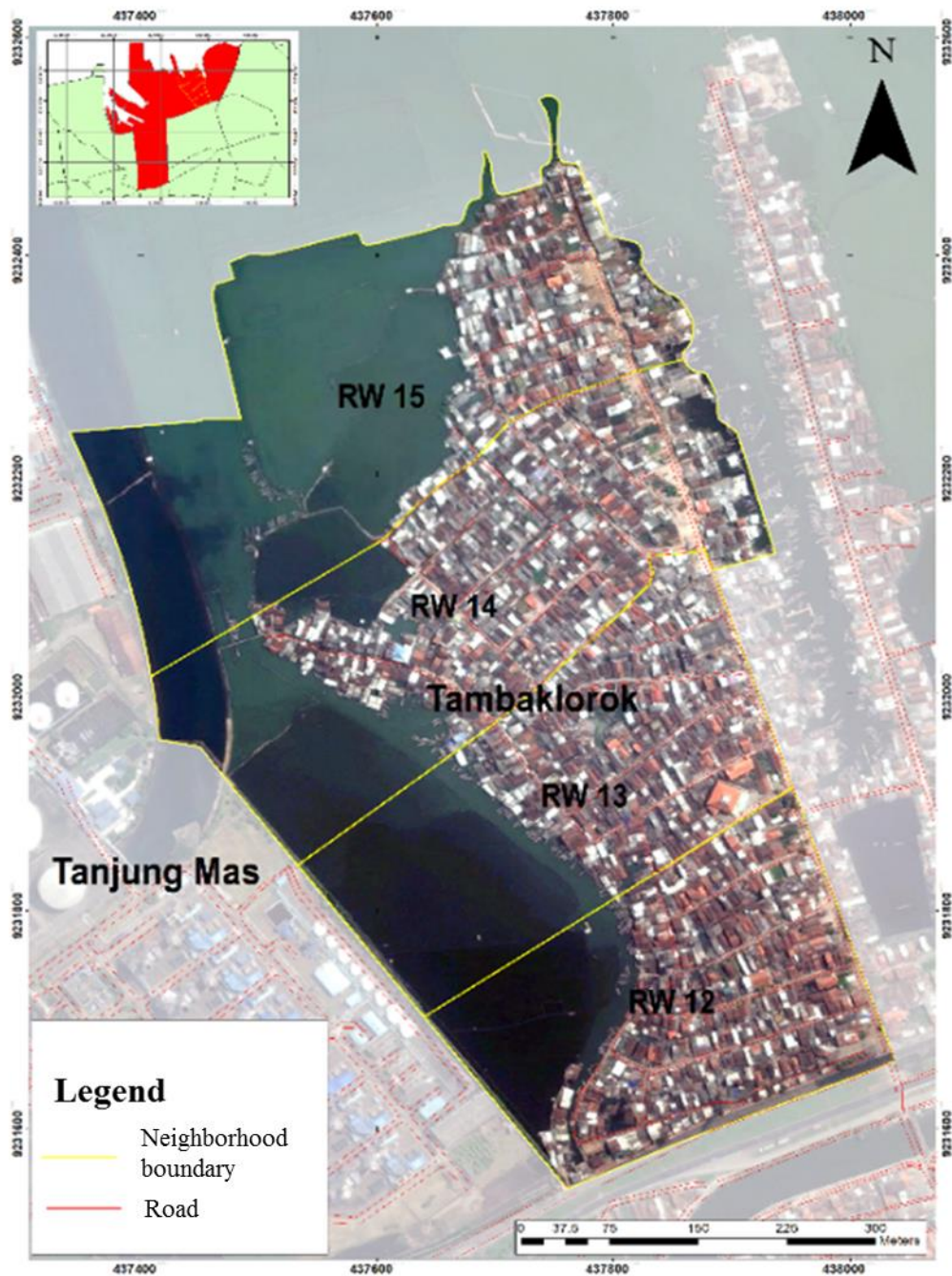
Source: Author, 2020

Figure 1. 1
Field study area

1.5.2 Operational Definitions

In this study, there are three concepts that are used as the pillar of the research. The three concepts are informality, urban water supply, and informal water supply. The following will describe the operational definition of these concepts:

1. **Informality**: a system of norms that do not rely on standardized bureaucratic rules and procedures for their execution or enforcement and are not legally recognized by the state. Informality can be seen as modes of governance.

2. **Urban water supply**: reffers to drinking water supply system in urban area in the form of a unit of facilities for providing drinking water which includes water collection and storage facilities at source sites, water transport via aqueducts (canals, tunnels and/or pipelines) from source sites to water treatment facilities; water treatment, storage and distribution systems. Urban water supply consists of piping network and non-piping network.

3. **Informal water supply**: the practice of water provisioning governed by the non-state which does not hold some form of statutory legal recognition.

1.7   Research Framework

The research framework explains the research process, begins from the background of this research which based on the government inability to provide water supply which causes the emergence of informal water suppliers. The informal practice becomes predominant and fill drinking water supply gap left by public utilities. This background is strengthened by the data of water service coverage in Semarang by PDAM, which only reaches 34,7 %. The rest of households fulfill their water needs through informal water supply in varying size and scale. Kampung Tambaklorok which once was an illegal and undeveloped area has relied on the informal practice in urban water supply since the beginning of the development of this settlement in 1950. In 2016, Kampung Tambaklorok was installed with networked pipe. Although the networked pipe has been connected, the residents still choose to use the informal providers. Understanding how informality produces is critical to assist in formulating regulations on informal practices that occur.

Based on the urgency, it arises the research question "how informality in urban water supply remains to occur in Tambaklorok, Semarang?" This research has an aim to analyze informality in urban water supply in Tambaklorok, Semarang to answer the research question. Further to gain the research goal, there are several objectives such analyze the access of networked pipe water supply in Tambaklorok, analyze the existence of non-networked water supply in Tambaklorok, and analyze the water utility role in urban water supply in Tambaklorok. From the analysis will give results in the form of the cause of informal water supply in Tambaklorok. Furthermore, the results are used to draw conclusions and recommendations relating to the research that has been done. For more details, see in Figure 1.2.
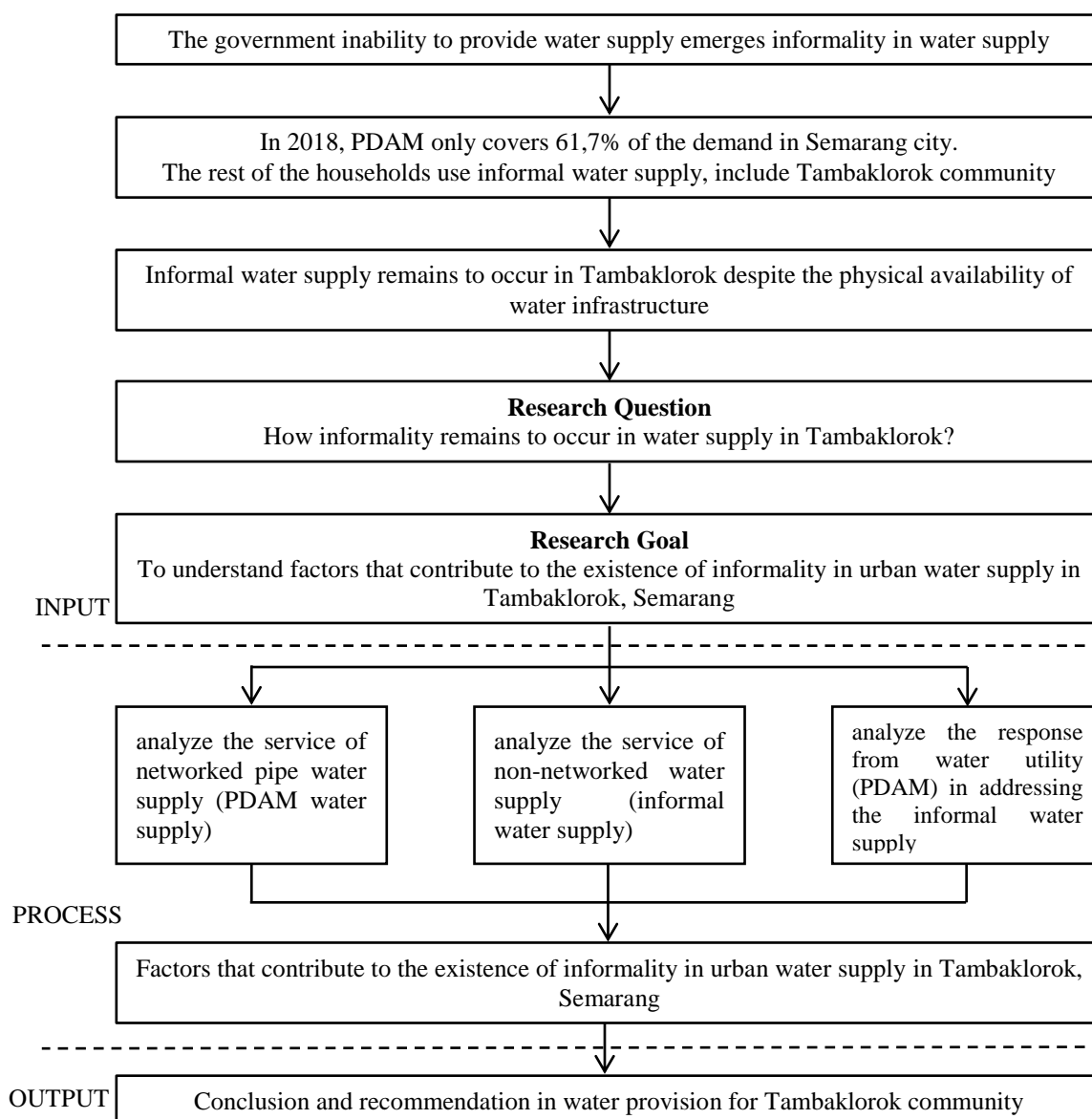
Figure 1. 2
Research Framework

Source: Author, 2020

1.8. Research Methods

Based on its purpose and the objectives, this study explores the causes of informality in water supply in Tambaklorok from various sides. To carry out this goal, the method that will be used is a combination of quantitative and qualitative methods which is called mixed methods. Mixed methods research is an approach to inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks. The core assumption of this form of inquiry

is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone. Quantitative methods is done at the first phase of the study which are carried out in the form of surveys. While qualitative methods are carried out in the form of interviews, document reviews, and observations. Based on its phase, this study belongs to explanatory sequential mixed method approach. The explanatory sequential mixed methods approach is a design in mixed methods that appeals to individuals with a strong quantitative background or from fields relatively new to qualitative approaches.

1.8.1 Population and Sample

The object of the research is Tambaklorok community, while the unit of analysis in this study is households. There are 2032 households in Tambaklorok. The sampling technique in this survey uses probability sampling with a simple random sampling technique. Thus, from 2032 households found in Tambaklorok, all of them have the potential to become research samples. The sample determination uses simple random sampling because the population is considered homogeneous. The number of samples is determined by Frank Lynch's formula with a proportion of fifty percent. The formula is used because the population is known. The number of samples is calculated using the formula:

$$n = \frac{NZ^2P(1-P)}{Nd^2 + Z^2P(1-P)}$$

n : Sample

N : Population (housholds)

P : Proportion of population

Z : Normal variable which is the reliability value

	80%	90%	95%	100%
Z	1,290	1,645	1,960	3

d : level of significant (1%, 5%, 10%)

Sampling in Tambaklorok uses a proportion of 50% of the total population. The population in this study is 2032 households. The degree of accuracy (level of significance) used is 10% so the level of trust in this study is 90%. Determination of proportions and degree of accuracy in determining samples considers resource limitations such as time and costs. Based on these criteria, the calculation of the sample formula is as follows:

$$n = \frac{NZ^2P(1-P)}{Nd^2 + Z^2P(1-P)}$$

$$n = \frac{2032(1,645)^2.50\%(1-50\%)}{2032(10\%)^2 + 1,645^2.50\%(1-50\%)}$$

$$n = \frac{1374,661}{20,99651}$$

$n = 65,5 \approx 66$

Based on the results of calculations, the number of samples needed is 66 households. The amount must be divided into 5 research locations in RW 12-15 in Tambaklorok. The distribution of samples per RW is calculated proportionally from the total households found in each RW in order to fulfill the sum of the results of the calculations above. The following is the number of households for each RW along with the sample size.

Table 1. 1
Proportion of Questionnaires for Each Neighborhood Community (RW)

| RW	Households	Sample
12	266	9
13	363	12
14	456	15
15	947	31
Total	2032	66

Source: Author, 2020

The requirements needed to be a sample of this study are respondents who must be residents of RW 12-15 of Tambaklorok. For this reason, sample determination was done randomly in each neighborhood community and directly visited the houses of the residents.

1.8.2 Research Process

In general, this study involves a two-phase project in which the researcher collects quantitative data in the first phase, analyzes the results, and then uses the results to plan (or build on to) the second, qualitative phase. The quantitative results typically inform the types of participants to be purposefully selected for the qualitative phase and the types of questions that will be asked of the participants. The overall intent of this design is to have the qualitative data help explain in more detail the initial quantitative results. A typical procedure might involve collecting survey data in the first phase, analyzing the data, and then following up with qualitative interviews to help explain the survey responses.

The two-phase in this research is done by collecting data from the field by using different sources and techniques. The multiple techniques in this research consists of questionnaire, interview, observation, and document review. Meanwhile the multiple sources of data in this

research consists of households as the consumers, informal water provider/water vendor, and the city government. The first phase is quantitative method which conducted through questionnaire. The data collection through questionnaire collect datas from household as the main objects in this research. The second phase is qualitative method which conducted through interview observation and document review. A series of interviews to public figures in Tambaklorok, neighborhood unit (RT/RW) head, city government (BAPPEDA), and PDAM is used to validate the findings from questionnaire.
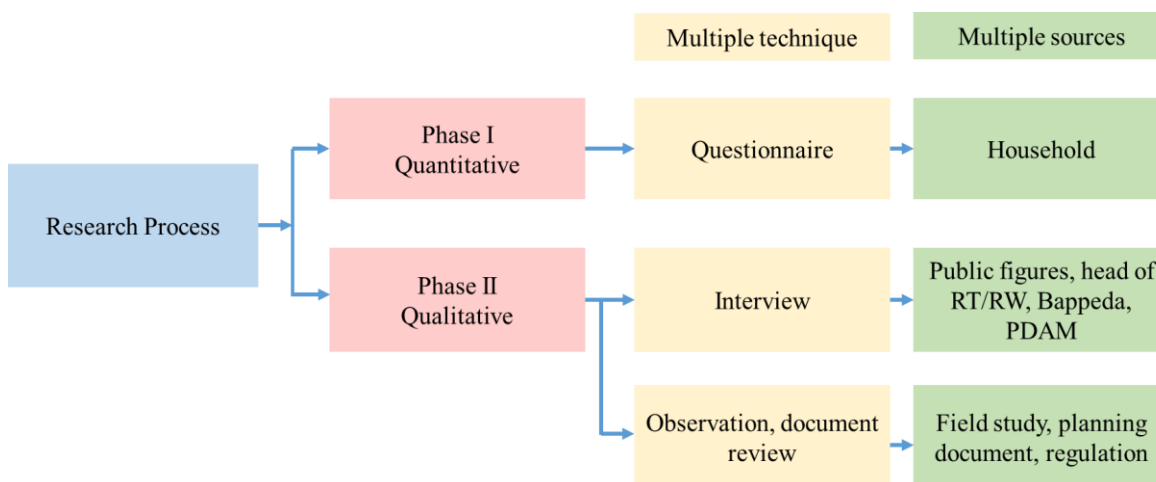
Source: Author, 2020

Figure 1. 3
Research Process

1.8.3   Data Collection

To obtain the data needed in this study, there are several data collection techniques that can be done. Data collection is divided into two categories which are primary and secondary data collection techniques.

1.   Primary Data Collection

The primary data collection technique is a way of obtaining data directly from the data source needed. Some methods of primary data collection carried out include:

a.   Field observation

The primary data collection technique in this way is useful for collecting data originating directly from the field. For example, the use of this method is used to find data in the form of photos, videos and direct descriptions of the existing conditions of the study area studied. Some of the data needed include physical condition of networked and non-networked water supply system.

b.   Questionnaire

The survey method for obtaining the most commonly used primary data is by using a questionnaire instrument. The use of questionnaires and determining the number of population is

important to produce data that is appropriate and accurate. Survey methods can gather a lot of information and variety. Distribution of questionnaires to the population became the main data source in this study. Questions compiled in the questionnaire include aspects of individual information, access of water supply system, existence of non-networked pipe water supply system, and government attention.

    c. Interview

Data collection techniques using interviews are useful for deepening certain information that has been obtained either through questionnaires or secondary data collection. Interviews were conducted to key informants who could explain further about the factors which causes the informality in water supply in Tambaklorok. Some of the speakers to be interviewed for this study included the RT/RW Chairperson and public figures in Tambaklorok.

2.   Secondary Data Collection

Secondary data collection techniques are carried out through literature review and document review. Document review is conducted to collect data from planning documents or statistical data sources provided by government or non-government agencies. Data collection was carried out by surveying related agencies, such as PDAM, BAPPEDA, BPS, and village government in Tanjungmas.

1.8.4   Data Analysis

The process of data analysis is divided into analysis of inputs, processes and outputs. Inputs explain the variables and data needed in the analysis process. The process phase explains the analytical techniques in the study. The output stage explains the results of the analysis. Figure 4.1 illustrates the analysis process of this study.
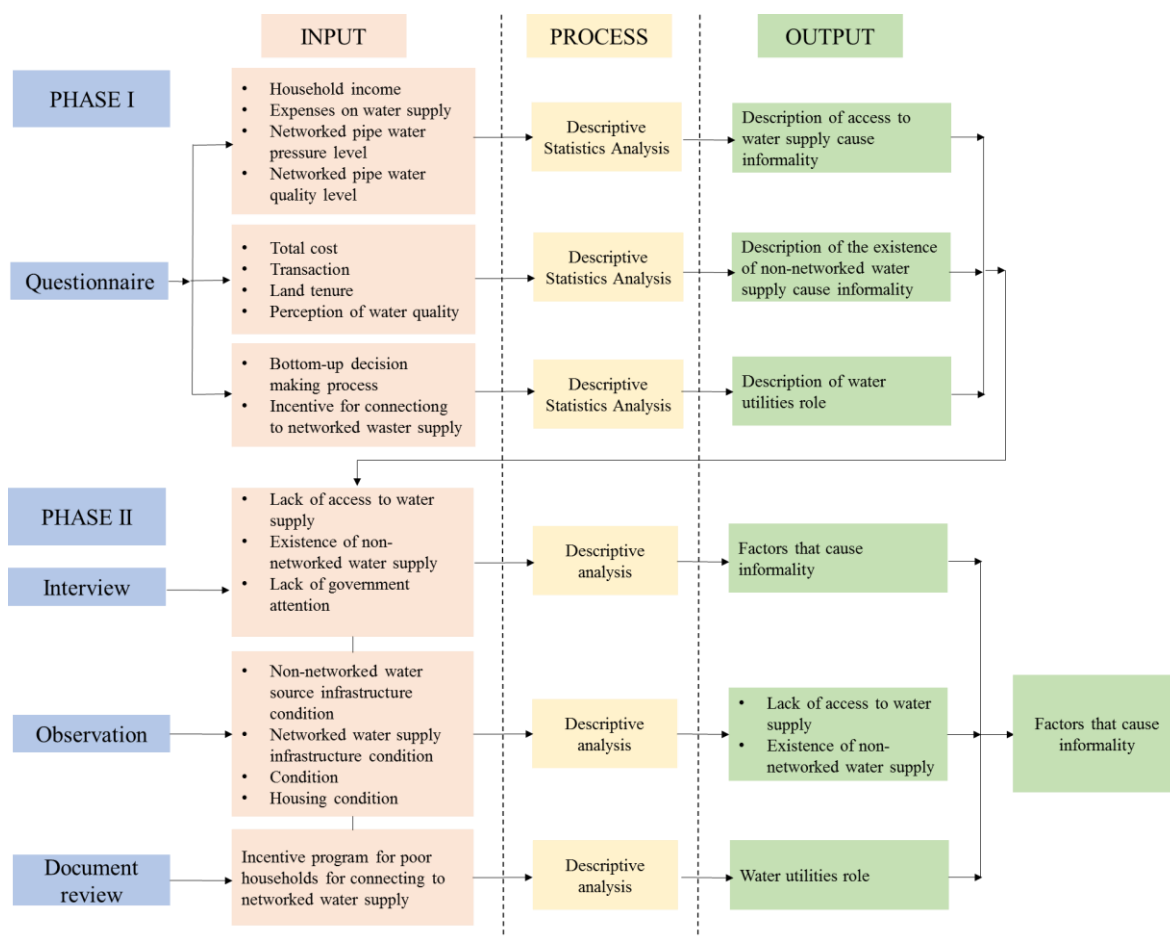
Source: Author, 2020

Figure 1. 4
Analytical Framework

As mentioned above that this research uses explanatory sequential mixed method which first conducts quantitative research, analyze the results and then builds on the results to explain them in more detail with qualitative research. The analysis technique used in this research includes descriptive statistics analysis and qualitative descriptive analysis. The research was conducted by collecting information related to factors that cause informal urban water supply in the research location. Assessment on several sub-variables that cause informal water supply has been done to the community of Tambaklorok about their perspective towards those sub-variables.

Table 1. 2
Analysis Technique

Variable	Sub-variable	Description	Name of data	Analysis technique
Access to water supply	Poverty	Poverty is associated with low access to water. Poor households usually have a high proportion of water expense to household income, which makes them suffer even more.	Household income	Descriptive Statistics Analysis
			Expenses on water supply	Descriptive Statistics Analysis
	Lack of access	Access to water is identified through water pressure. Assessment uses a range of values 1-10. Value 10 has the highest value.	Perception of networked pipe water pressure level	Descriptive Statistics Analysis
		Access to water is identified through water quality. Assessment uses a range of values 1-10. Value 10 has the highest value.	Perception of networked pipe water quality level	Descriptive Statistics Analysis
Existence of non-networked water supply	Non-networked water sources	Description of the types of water sources. Non-networked water sources consists of: groundwater and vended water	Non-networked water sources	Descriptive Statistics Analysis
	Total cost	Total cost of network piped water = charges per unit volume + meter fee	Charges per unit volume of water for networked water supply	Descriptive Statistics Analysis
			Meter fee	
		Total cost of network piped water = charges per unit volume + additional fee (if there are additional fee)	Charges per unit volume of water for non-networked water supply	Descriptive Statistics Analysis
			Additional fee	
	Transaction	Types of income are differentiated into regular/fluctuating. Household with fluctuating income tend to use informal water supply because of its flexibility of payment	Type of income	Descriptive Statistics Analysis
		Description about non-networked water supply payment method which consists of billed door to door by water vendor and self payment to the vendor without fixed time	Transaction/payment method for non-networked water supply system	Descriptive Statistics Analysis

Variable	Sub-variable	Description	Name of data	Analysis technique
		Households tend to use informal water supply due to its ease and flexibility of transaction/payment method. Assessment uses a range of values 1-10. Value 10 has the highest value.	Ease and flexibility of payment for non-networked water supply system	Descriptive Statistics Analysis
			Ease and flexibility of payment for networked water supply system	Descriptive Statistics Analysis
	Land tenure	Household with lack of tenure and no-permanent buliding tend to use informal water supply. Types of tenure are differentiated into: 1. ownership certificate (SHM), 2. buliding rights (HGB), 3. no-certificate.	Type of tenure	Descriptive Statistics Analysis
		Types of building are differentiated into: 1. Permanent, 2. semi-permanent, and 3. non-permanent	Type of building	Descriptive Statistics Analysis
	Perception of water quality	Households tend to use informal water supply to its better quality. Assessment uses a range of values 1-10. Value 10 has the highest value.	Perception of non-networked water quality	Descriptive Statistics Analysis
Water utiliy role	Decision making process	Description about the existence of community meeting for participatory decision making. The existence of participatory decision making is useful to obtain ideal water supply according to the resident	Existence of participatory decision making	Descriptive Statistics Analysis
		The more often held community meetings, the better citizen participation. Assessment uses a range of values 1-10. Value 10 has the highest value.	Frequency of community meeting	Descriptive Statistics Analysis
		The more often residents attend community meetings, the better the decision-making process. Assessment uses a range of values 1-10. Value 10 has the highest value.	Participation in decision making	Descriptive Statistics Analysis

Variable	Sub-variable	Description	Name of data	Analysis technique
	Incentive for connecting to networked water supply	The existence of incentive can persuade the households for connecting to networked pipe	Existence of incentive for poor household for connecting to networked pipe	Descriptive Statistics Analysis
		The more households are interested for incentive, the bigger the chance to use networked water supply. Assessment uses a range of values 1-10. Value 10 has the highest value.	Household interest of incentive for connecting to networked pipe	Descriptive Statistics Analysis

Source: Author, 2020

Quantitative descriptive analysis is a description or explanation by making tables, grouping, analyzing data based on the results of questionnaire answers obtained from respondents responses using data tabulation. Quantitative descriptive is used to explain the results of quantitative calculations or quantitative data. Analysis by processing data from research results that have been expressed in units of numbers to be analyzed by statistical calculations of the object variables under study. The steps taken are by recapping the questionnaire answers and then calculating the percentage of answers for each question. The questionnaire instrument used consists of questions with a scale of measurement nominal, ordinal and interval. Each answer to the question will be processed using tables and graphs, then the results are interpreted with descriptive analysis. The analysis was carried out through a 1-10 Likert scale rating.

Number of choices   : 10

Lowest score   : 1

Highest score   : 10

Range   : highest score – lowest score = $10 - 1 = 9$

Category   : 4

Interval   : Range / Category = $9/4 = 1{,}8 \approx 2$

Based on the assessment conducted by the community in Tambaklorok on several factors that cause informality in urban water supply in Tambaklorok, then the data is processed using frequency distribution. Assessment is done through scoring with value 1-10. A score of 1 represents a very negative response toward a statement, while a score of 10 represents a very positive response statement. Later on the assessment result categorized into 4 categories.

1. Access to Networked Pipe Water Supply

Table 1. 3
Scoring of The Assessment to Access to Networked Pipe Water Supply

Aspect	Score category	Category
Networked Pipe Water Pressure Level Assessment	1-3	Very negative
	4-6	Negative
	7-9	Positive
	10	Very positive
Networked Pipe Water Quality Level Assessment	1-3	Very negative
	4-6	Negative
	7-9	Positive
	10	Very positive
Networked Pipe Water Water Cost and Transaction Assessment	1-3	Very negative
	4-6	Negative
	7-9	Positive
	10	Very positive

Source: Author, 2020

2. Water Utility Role

Table 1. 4
Scoring of The Assessment to Access to Water Utility Role

Aspect	Score category	Category
Community Meetings Frequency Assessment	1-3	Very negative
	4-6	Negative
	7-9	Positive
	10	Very positive
Interest in Incentive for Connecting Assessment	1-3	Very negative
	4-6	Negative
	7-9	Positive
	10	Very positive
Participation in Decision Making	1-3	Very negative
	4-6	Negative
	7-9	Positive
	10	Very positive

Source: Author, 2020

3. Non-networked Pipe Water Supply Practices

Table 1. 5
Scoring of The Non-networked pipe Water Supply Practices

Aspect	Score category	Category
Non-networked Pipe Water Pressure Assessment	1-3	Very negative
	4-6	Negative
	7-9	Positive
	10	Very positive
Non-Networked Pipe Water Quality Assessment	1-3	Very negative
	4-6	Negative
	7-9	Positive
	10	Very positive
Non-Networked Pipe Water Water Cost and Transaction Assessment	1-3	Very negative
	4-6	Negative
	7-9	Positive
	10	Very positive

Source: Author, 2020

The quantitative results are then used to plan the qualitative follow-up. It is following up with qualitative interviews to help explain the survey responses or the assessment. The quantitative results point toward the types of qualitative questions to ask participants in the second phase. Based on the assessment result in the first phase, this research needs data and further explanation and confirmation from the water utility in Semarang City and the main actor in informal water supply in Tambaklorok which is the informal water vendor. To gather data, interviews are conducted on PDAM Tirta Moedal, BP SPAMS, BAPPEDA Semarang City, informal water vendor in Tambaklorok, and head of RW in Tambaklorok. The interviews were transcribed and analyzed. Qualitative follow-up data helps to explain the quantitative results and provide a more complete understanding of the research findings.

1.9 The Outline of The Report

This report consists of five chapters, here are the explanation of the content in each section.

CHAPTER I INTRODUCTION	Elaborate on the background of the study, problem statement, and the research goal. It also contains the research benefit, research scope, research positioning, research framework, and research method.

CHAPTER II LITERATURE REVIEW	Consists of a literature review, theoretical foundation, and theoretical framework about urban informality and urban water supply.
CHAPTER III WATER SUPPLY IN TAMBAKLOROK	Shows the overview of the case study area, Kampung Tambaklorok. It shows an introduction to population, social, economic, and infrastructure in Tambaklorok.
CHAPTER IV INFORMALITY IN URBAN WATER SUPPLY	This chapter describes the results of data processing and interpretation so that it can answer the formulation of problems and research questions. The sub-chapters that will be discussed are the factors that cause informal water supply being persistent in Tambaklorok includes networked pipe water supply, water utility role, and non-networked pipe water supply. The final section discusses the research findings which are the output of the research.
CHAPTER V CONCLUSION	The concluding chapter provides conclusions and recommendations. The conclusion discusses the results of the analysis from the data obtained. The discussion of recommendations includes input related to water supply in Tambaklorok.