Ecological damage and individualistic behavior: A study on the urban crisis in Surakarta City

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Abstract. The city is the face of civilization supported by high economic growth, superior human resource quality, and government center. However, a crisis phenomenon is stored behind the city's greatness due to human behavior within it. One aspect mostly affected is an ecological one. This study focused on the urban ecological crisis in Surakarta City. This paper's research question is: what type of individualistic behavior of the people of Surakarta City? What environmental sector is closest to an ecological crisis indicator according to local communities? Does individualistic behavior affect the higher level of ecological crisis in Surakarta? The author used a mixed-method with a quantitative-dominant and qualitative-less design. Field research procedure has been conducted involving observation, in-depth interviews, and quantitative survey. The statistical analysis process with Pearson's correlation model shows a positive relationship between individualistic behavior and the ecological crisis in Surakarta City. The finding in the individualistic variable is mostly affected by comers' existence and the suspicion among fellow citizens, leading to the revocation deprivation of social values and the fading gotong royong (mutual cooperation) culture. In this study, the ecological crisis is defined as the degraded city facilities, green open space, and river.

1. Introduction
The city is known as the center of human activities, always developing. Town, with its various superiorities, makes many people want to live within it. The number of populations in the city, either city native population or comer, increases. It is this that generates a new problem in the city [1]. It also occurs in, among others, Surakarta City. Surakarta City is the second-largest city in Central Java, with 517,887 populations in 2018 and a 44,04 Km²-wide area [2]. The development of Surakarta City is inseparable from economic growth, including Surakarta city keeps improving. The economic Growth index of Surakarta City is 5.56% in 2-2019, higher than the mean provincial growth of 5.31%, and the national mean of 5.04% [3]. The highest contribution of 27.14% comes from the construction sector [4]. In economic law, when the Gross Domestic Regional Product (GDRP) increases in Surakarta City, the people's per capita income also increases. Per capita income is used to measure the people's welfare. The increase in society per capita income indicates an increase in people's well-being. Besides, the rise of GDRP is a parameter of a region's successful economic development [5]. The people's increased well-being indicates that their primary need has been sufficient, and their secondary
or tertiary demand will potentially increase. It results in many changes in Surakarta City, the increased requirements for transportation (private vehicle), lifestyle as indicated with the larger number of malls/shopping centers in Surakarta City, entertainment encouraging the hotel's appearance, culinary tour, etc. It is confirmed with the change and the increase of people's need leading to the increased pressure on the environment such as traffic jams, urban land conversion and narrowing, rubbish problem, limited green open space (RTH), slum, water pollution, etc [6].

Compared with other regions throughout Soloraya, 1) the ratio of Green Open Space in Surakarta is 9.72% [7], while in Sukoharjo 23.76%, 2) Water pollution in Surakarta, there are 4 (four) polluted rivers: 2 (two) rivers belonging to 3rd-class pollution harmful to animal and plant life, and two belonging to 4th-class pollution harmful to human health [8], while river pollution level in Sukoharjo is categorized into the mild group only, that belonging to 2nd-class quality in Boyolali with organized DO and phosphate concentration [9]. 3) Air quality in Surakarta City has a score of 43.49% belonging to the wary category [10] while that in Sukoharjo, viewed from SO2, CO, NO2, and O3 parameters, still qualifies the good standard quality and only on location with a total score of 344.8 ug/Nm3 or belonging to unhealthy level viewed from TSP parameter [10] in Carrefour intersection of Solobaru, and that in Boyolali has Air Quality Index of 87.59 [9] in 2019. 4) Rubbish, the rubbish volume is 1.164.70 m3/day in Surakarta disposed of in Putri Cempo landfill [11], 97.17 – 299.87 m3/day in Sukoharjo [12], and 264.546 kg/day in Boyolali [9].

According to the data mentioned above, this study elaborates on the theory of urban life manifesto coined by LeGates to examine Surakarta's ecological crisis. Urban crisis in urban life manifesto theory is reviewed from various indicators such as poverty caused by economic inequality as occurred in 1998 in Indonesia [13], the exclusion of citizens from urban development/planning, this indicator described in the Case's research[14], privatization of land thereby eliminating public open spaces, centrifugal fragmentation due to industrialization which encourages residents to work outdoors, loss of urban spatial meaning examined in the research of Bhattacharya in the Eastern Himalayan [15], fading, social injustice, and professionalism which is not rooted within the city needs. Furthermore, to examine individualistic behavior, the theory of risk society from Ulrich Beck is used, discussed at the level of objective life situations (sociological category). In his study, individualization is interpreted as a new socialization process within the dimension of a categorical shift in the relationship between individuals and society [16].

Overall, Surakarta has a more massive percentage indicator of ecological crisis compared with that in other regions throughout Soloraya. It makes the author interested in choosing Surakarta City as the research location, and the author wants to study the relationship between the individualistic behavior of urban people and the urban ecological crisis. This paper's research question is; what type of individualistic behavior of the people of Surakarta City? What environmental sector is closest to an ecological crisis indicator according to local communities? Does individualistic behavior affect the higher level of ecological crisis in Surakarta?

2. Method

2.1. Location and time
The research took place in Surakarta City, focusing on the ecological crisis. The study was conducted by divided the location into five small groups that will be distributed later by the number of sub-districts in Surakarta, consisting of 5 sub-districts. Surakarta city as the meeting point of rivers has some environment-related problems; individual sub-districts becoming the research goal here have an exceptional case; it is also related to different area width. This research was conducted for three months, from September to November 2019, by involving citizens as the object of study and urban academicians in FISIP UNS (Faculty of Social and Political Sciences of Sebelas Maret University).

2.2. Technique of collecting and analyzing data
Based on the theory used, this study's independent variables are individualistic behaviors, whereas ecological crises are variable dependent. The research method employed was a mixed method with a
dominant quantitative, less prevalent qualitative scheme, mixed quantitative and qualitative methodology. The qualitative method used in this research was the phenomenological approach to explain the ecological crisis within society that should be raised and studied in-depth to support the data obtained from the questionnaire in the quantitative method. Mix method is used because it could considerably answer the research questions, mainly through quantitative, which thematically analyzes the relationship between those two variables. Meanwhile, the qualitative method can explore the typification of constructing the people's notion, which is formed accordingly on the experience and life background of individualistic behavior and the ongoing ecological crisis. Qualitative data was obtained through an in-depth interview with 20 informants, observation, and documentation study to see the community's actual condition [17]. The questionnaire was organized based on the derivative of individualistic variable constituting the derivative of risk society theory proposed by Ulrich Beck [18] and urban crisis theory with Urban Life Manifesto design developed by Le Gates [19] [20]. The reason for using risk society theory as it explains in detail the behavioral indicators of urban communities, particularly in the post-industrialization era, to the plurality of urban life, which researchers assume is probably correlated with the urban crisis theory. Because of almost all causes of environmental damage stem from community apathy behavior.

The technique of analyzing data used in this research was correlational analysis. Correlational analysis was used to find out the close relationship between two variables and to find out the direction of the relationship occurring [21]. Pearson's Product Moment Correlation belongs to a parametric statistic technique using interval data with an unquestionable requirement. The sampling was conducted according to Issac and Michael’s table [22], indicating that the size of the sample taken was 414 out of 517,887 people with a standard error of ±5%. Survey data analysis was conducted using IBM SPSS. In contrast, the validity test was conducted by comparing the $r$ table for the degree of freedom (df) = n-k, with an alpha of 0.05, where n is the number of samples, and k is the number of items. In this study, the alternative hypothesis (Ha) is that there is a correlation to the ecological crisis occurring in Surakarta caused by individualistic behavior. In contrast, the null hypothesis (H0) has no relationship at all.

### 3. Results and discussion

#### 3.1. Portrait of individualistic behavior

| Individualization Level | No. of Respondent | Percentage | Cumulative Percentage |
|-------------------------|-------------------|------------|----------------------|
| Low                     | 43                | 10.4       | 10.4                 |
| Medium                  | 295               | 71.3       | 81.6                 |
| High                    | 76                | 18.4       | 100.0                |

(Source: Primary source gained through quantitative approach using IBM SPSS)

From table 1 above, it can be concluded that individualistic behavior is primarily on the medium level with a score of 71.3%, followed by a high level with a score of 18.4% and a low level with a score of 10.4%. Considering the data above, it can be seen that the cumulative percentage of Individualistic Behavior of Surakarta city belongs to medium and low classes, 81.6%. It indicates that most respondents of Surakarta City people have medium-level individualistic behavior. This individualistic portrait indicates that a shift of behavior has occurred to urban people's behavior identical with individualistic attitude uncaring about togetherness values.
Figure 1. Individual behavior level of Surakarta City people measured using survey.

From the data presented above, it can be seen that most respondents are on medium-level individualistic behavior with a score of 71.26%, and it can be concluded that the individualistic level of people in Surakarta City belongs to the medium category. It can be seen from the number of data dominantly indicating an individualistic level and shown by the mean score of 24.51. Then, considering the result of the interview conducted, the author analyzes 2 (two) individualistic indicators that have been analyzed through a phenomenological approach called typification variety [17] by the author (see table 2).

3.1.1. Value deprivation. This part will answer the research question of what type of typification is constructed in people's notions discussing individualistic behavior. In this stage, individualization is defined as a process of removing value from the social status-based class. In this process, the structure of society changes or is eliminated gradually [16]. It can be seen from the change of family structure, housing condition, geographical distribution, relation in the surrounding environment, behavior in leisure time, membership of the club, etc.

Table 2. Typification of Individualistic Behavior in Surakarta City.

| Value Deprivation            | Control or reintegration dimension          |
|------------------------------|--------------------------------------------|
| Fading mutual cooperation culture | 1. Social envy                              |
|                              | 2. Skepticism of river bank people         |
|                              | 3. Comer irony                              |

(Source: Primary source gained through qualitative approach).

3.1.1.1. Fading mutual cooperation culture. The fading mutual cooperation characterizes one of the most prominent things resulting from individualistic behavior. It is because many comers from outside Surakarta City were residing in native people's residence. The native people have had a good social bond, and thereby perhaps adapt difficultly to the comers’ culture and behavior. The comers consist of small and big families and many students having studied at Sebelas Maret University, confirming the shift of culture. Finally, mutual cooperation culture disappears over time.

“...previously we were familiar with each other, helped each other, but it is not the same now, it is because of religion issue. We adhere to the same religion but have a different perspective on tahlilan. It results in a conflict...” (Interview with MO on November 15, 2019).

3.1.2. Control or reintegration dimension. Furthermore, the individualization process is a control and reintegration process, the change of old category into the new one within society. The 3 (three) theses
offered by Beck related to the individualization process are: (1) the peculiarity of individualization lies in its consequence, (2) the presence of socio-biographic situation differentiation followed with high standardization degree, and (3) the emergence of contradictive double faces: individual situation instead dependent institutionally [16]. Therefore, individualization as a reintegration process is defined as the emergence of the personal trouble controlling structure depending on the particular institution.

3.1.2.1. Social envy. Still, due to many comers residing in Surakarta City, the author found most of them live in Jebres Sub District, leading to a unique phenomenon, social envy. The members of the community in Jebres Sub District constituting native people feel strange with the comers. It is because of the heterogeneity of people coming from different economic, education, and social-cultural backgrounds. Therefore, social envy arises as explained by the informant:

“…The conflict will not occur when all members of the community are aware of and understanding their difference, and do not make it a problem” (Interview with ML on October 16, 2019).

Considering the argument above, social envy is due to some introverted citizens. It indicates that their private domain is higher than the native people’s. The broad personal space narrows the communication space that should be established harmoniously.

3.1.2.2. Skepticism among river bank people. Surakarta City, crossed with the Bengawan Solo River, stores many unique portraits of its people. For example, in Banjarsari Sub District, precisely in Stabelan, where kampung deret (village of row houses) and rusun rawa (Rawa low-cost apartment) in Kelurahan Keprabon crossed by Pepe River (Kali Pepe)—considering the observation conducted, many rubbish pile up along the Pepe River.

The interview result shows a difference in statements from the communities in both kampung deret and rusun rawa. The kampung deret state that the ones responsible for the rubbish scattered along the River are Rusun Rawa people who always dispose of their domestic rubbish. However, in contrast, Rusun rawa people said instead it is kampung deret people who dispose of rubbish into the river. Interestingly, kampung deret people also said that the rubbish scattered comes from the vehicles used by cleaning service officers.

Considering the phenomenon, it can be concluded that individualistic behavior is composed of skepticism. Low awareness and poor collectivism among the people living around the Pepe River erode the sense of belonging to the river located in their residence. They unenthusiastically collaborate to take care of the river and to conserve the environment.

3.1.2.3. Comer irony. Some facts aforementioned occur primarily due to the presence of comer. Indeed, individualism is often due to many comers who socialize reluctantly with the native people. It generates envy or suspicion, increasing skepticism within society. This discussion is similar to Earle's findings, which confirmed that most newcomers do not have good interactions, so they need social intervention [23].

“…There are many comers here, so we cannot interact with them because they are passive, some comers have good relation with the native people, but some others do not” (Interview with MU, on November 22, 2019)

The incidence above portrays people in Laweyan Sub District well-known for its batik center in Surakarta City. The comers’ inability to adapt to local people is a unique indicator of individualism. Nevertheless, viewed from the phenomenon, it can be seen that Surakarta City people still uphold kinship culture as characterized by the local people feeling unpleasant when the comers will not
socialize with them. The absence of interaction between community members is because no public space can be used for socialization and assembly purposes.

3.2. Ecological crisis

Table 3. Description of ecological crisis interval class.

| Crisis level | Frequency | Percentage | Cumulative Percentage |
|--------------|-----------|------------|-----------------------|
| Low          | 30        | 7.2        | 7.2                   |
| Medium       | 252       | 60.9       | 68.1                  |
| High         | 132       | 31.9       | 100.0                 |

(Source: Primary source gained through quantitative approach using IBM SPSS).

From table 3, it can be seen the most considerable frequency of ecological crisis is on medium level, 60.9%. It is followed by 31.9% of respondents on a high level and 7.2% of respondents on a low level. It can also be seen that the cumulative percentage of ecological crisis is on medium and low classes, 68.1%. It indicates that most respondents confirm that Surakarta City is now in a medium-level ecological crisis.

Figure 2. Ecological crisis level in Surakarta measured using survey.

From the pie chart above, it can be seen that overall, the ecological crisis level in Surakarta City belongs to the medium category. It can be seen from the number of data indicating an ecological crisis on medium level dominantly and the mean score of 65.89. Surakarta City is analyzed qualitatively and finds the following inventions on the environmental crisis stage (see Table 4). The next qualitative explanation will answer research questions related to the typification constructed regarding the type of urban ecological crisis in people's dwellings.

Table 4. Typification of urban ecological crisis.

| Gigantism                        | Privatization               | City Facilities          |
|----------------------------------|-----------------------------|--------------------------|
| Strange with development         | children                    | Limited Green Open Space |
| converted function               | playground’s                | River flow pollution     |

(Source: Primary source gained through qualitative approach).
3.2.1. Gigantism phenomenon. Surakarta city development is manifested into high buildings consisting of offices, malls, hotels, café, and other luxurious places making the alienation felt deeper, particularly by the low-class community. The author found that the development occurring is not people-oriented but profit-oriented only.

"...Actually, I don't like. Personally, yes. What are its functions? I regret the presence of development personally. What are its objectives? I think Surakarta's roads have been good. Why is it deconstructed and paved?" (Interview with SU on November 24, 2019)

The city embodies giant (gigantic shape), with which native populations feel strange. It indicates that the development is not distributed evenly to all classes of society in Surakarta. It focuses on the downtown, along Slamet Riyadi Street. In the presence of such buildings, they feel extraordinary with their birthplace. There is a feeling of alienation in their city that should bring comfort. It is because buildings have limited access so that not all social classes can access and enjoy the facilities within it. Only a few people with well-established economic ability can access it discretionarily.

3.2.2. Land privatization. High privatization can destroy public life, interpreted as the result of a development program planner who has reached the core part of urban people's life, public space, and green open space [24].

3.2.2.1. Children playground with converted function. One of the exciting phenomena in Surakarta city, precisely in Semanggi Sub District, is the shift of public space definition from the place used as much as possible for collective interest to the one used by few people only. In Pasar Kliwon Sub District, there is a Green Open Space (RTH) popularly called Semanggi Green City Development Program (P2KH). The park is RTH containing the largest facilities for children in Surakarta city. However, those facilities have been damaged and used by people using the land for personal business purposes.

"Yeah, that is. We have coordinated with the government, sub-district, lurah, but it cannot solve the problem. Why? Because that is a provincial project, so it has not been handed over to the city (municipal) government, DLH should know this problem does not want to deal with it and leaves it. It does not respond to it" (Interview with SU on November 24, 2019)

Figure 3. Semanggi Green City Development Program (P2KH) Park replete with worn-out cars.
P2KH Semanggi is the land belonging to the Provincial Government (Pemprov) located in Surakarta City’s administrative area. The management of land should be maintained and used by Pemprov. However, Pemprov does not implement the foremost duty and function and leaves the land exploited by unauthorized citizens. Considering the informant’s information, besides the P2KH park, there is a used car workshop and sale center. Initially, the owner parked a used car in the corner of the garden, but more worn-out vehicles are put on the location as time goes by. The park that should be used for a public facility is instead used by unauthorized ones irresponsibly. Citizens have conducted an audience from Kelurahan to City Government level, but no acceptable response is obtained.

Because of an excuse, the management is Pemprov’s authority, and Pemkot does not have authority within it. In P2KH, there are some sports facilities such as a gym and jogging track, but following the function conversion, those facilities are no longer accessible. It worsens the condition of RTH (green open space). The neglected city facilities that have been constructed are one of the typifications found by the author in Pasar Kliwon Sub-district. The well-constructed ecology is as if neglected and not-maintained. It indicates that Surakarta City is encountering an ecological crisis due to human behavior.

3.2.2.2. Limited green open space (RTH). Surakarta City does not have RTH distributed in 5 sub-districts; it is available only in individual sub-districts. The use of RTH as a means of maintaining the ecosystem and clean air is considered very important to conserve human life.

“There is no longer a park, there are just houses. Previously, flowers are planted on the street edge to create the park. I don't; think so. Developing a park is easy, but maintaining it is difficult)” (Interview with ML on October 16, 2019)

The finding above indicates that there is no RTH in Jebres Sub District. There has been Taman Cerdas (Smart Park) on Ki Hajar Dewantara Stree, but the park is not replete with shady trees. As a result, the park that should be beneficial to filter the city air instead represents barrenness. Informants also added that the actual availability of green land in Jebres Sub District would be converted into the settlement and the construction of citizens' houses.

3.2.2.3. River flow pollution. The river has lost its primary function as the water ecosystem organizer, and it is instead defined as a collective landfill. The most polluted rivers in Surakarta City are those in Pasar Kliwon and Banjarsari Sub Districts. Pasar Kliwon is crossed by Jenes River, connecting Kelurahan Sangkrah to Kelurahan Gandekan. The river is highly polluted, replete with domestic waste.

Figure 4. Portrait of Jenes River replete with domestic waste.
The author sees disequilibrium occurring in that area. Previously, revitalization has been conducted by hardening the river bank with concrete. It is intended to beautify and to speed up the river flow into Bengawan Solo. Jenes River revitalized using concrete is not proportional to people's lifestyle. Initially, the revitalization was expected to beautify the city-village face's esthetics, but it is not in line with the quality of people; therefore, the river becomes a collective landfill.

Similarly, Banjarsari Sub District is crossed by the Pepe River. As explained in the ecological crisis subchapter, there is kampong deret in Kelurahan Stabelan and rusun rawa in Kelurahan Keprabon. People around the Pepe River make it the landfill, resulting in floods during the rainy season. Thus, state of the art lies in economic development, which encourages changes in people's behavior to become more individualistic, leading to urban ecological crises. Demands to meet the domestic needs of households are the leading cause. This is reflected in gigantism, land privatization, and children's play areas where their functions are converted. The differences in the causes of this ecological crisis are different from Wust's research due to population explosions [25], even with the ecological crisis in Ghana due to the limited sanitation due to ancestral myths. [26].

3.2 Product moment correlational analysis

The research calculates $r$ statistic value to be compared with $r$ Table later to see the result of correlation. The conclusion is divided into two: if $r$ statistic is more than $r$ table, the alternative hypothesis (Ha) is supported, and the null hypothesis (H0) is not supported. The result of the calculation for the two variables is presented in the table below.

| TOTAL CRISIS    | TOTAL INDIVIDUALIZATION |
|-----------------|-------------------------|
| Pearson Correlation | .447**                |
| Sig. (2-tailed)  | .000                    |

**. Correlation is significant at the 0.01 level (2-tailed).
(Source: Primary source gained through quantitative approach using IBM SPSS)

Considering the data presented in the table above, it can be seen that the $r$ statistic is 0.447 and lively, with a significance level of 0. To determine the correlation between the two variables, the comparison of $r$ statistic and $r$ table can be conducted; therefore, considering the table of critical value on 414 samples with a confidence interval of 0.5 is 0.098. It can be concluded that $r$ statistic > $r$ table. Thus, an alternative hypothesis (Ha) is supported [27]. It is confirmed with a significance level of 0 < 0.05. Then, correlation can be seen with the positive direction of variable correlation, $r$ Table is on the positive number, as indicated with the one-way relationship of X to Y variable. Thus, this correlation's results answer the research question: Surakarta City people's individualistic behavior is correlated positively with the cause of the ecological crisis. It is confirmed with the qualitative finding explained in the previous subchapter.

4. Conclusion

This research concludes that the Surakarta City people's individualistic behavior correlates with the development of the ecological crisis, as indicated with the data showing that the correlational value of the two is on the medium level. This research proves that the alternative hypothesis stating a correlation between individualistic behavior and ecological crisis is supported with normally distributed data. Then, qualitative typification exploring individualistic behavior of Surakarta City people shows that two indicators affect the view on individualistic, control, or reintegration indicator.
or dimension and value deprivation indicator. Considering the two indicators, some factors support the establishment of individualistic character: fading mutual cooperation, social envy, skepticism of river bank people, and comer irony in which answer the first research question. Meanwhile, the analysis of the ecological crisis shows that the massive city development through projects often harms society's environmental and social aspects. Three factors are the main cause of the ecological crisis: gigantism, privatization, and city facilities indicators. Considering the three hands, there is another fact featuring new findings, the alienation in development, children's playground the function of which is converted, limited green open space (RTH), and river flow pollution. Those explanation answers the second research question. Thus, state of the art lies in economic development, which encourages changes in people's behavior to become more individualistic, leading to urban ecological crises.

Acknowledgements

We would like to record the highest gratitude and profound thanks to Dr. Drajat Tri Kartono for his supervision in conducting this research. His enthusiastic support is always encouraging the authors to take it seriously. All the participants involved in collecting and analyzing are the student at the Department of Sociology, batch 2017, class B. This paper is a collective field-research project of the urban sociology course, further organized for the National Conference on Urban Sociology 2019. We also thank all researchers at the Research Center for Population, Indonesian Institute of Sciences (LIPI) for their contribution in providing peer group discussion and supervision assistance. The mistakes listed in this paper are the authors.

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