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THE EFFECT OF LAND CHANGE ON ENVIRONMENTAL CONDITIONS IN THE PERI-URBAN AREA OF SAWAHAN VILLAGE AND THE RELATION TO SUSTAINABLE CITIES AND SETTLEMENTS

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Abstract

Sawahan Village is one of the villages in Boyolali Regency which acts as a bridge between the surrounding villages and the city of Surakarta which has undergone land changes for development development. Even though Sawahan Village is an urban area that should have a higher green space area than the gray space area. The purpose of this study was to determine the factors causing land changes and the effect of changes in the availability of green space for agricultural land as a result of development developments on environmental conditions in the peri-urban area of Sawahan Village, Ngemplak District, Boyolali Regency, and to determine the suitability of the conditions of Sawahan Village regarding the destination of the 11 SDGs. This study uses interviews, observation and triangulation with purposive sampling techniques so that the data used can be collected in the form of words and actions, written data sources, documentation and statistical data. Based on research results, in 2000 the condition of green space was wider than the gray space, while in 2010 and 2020 the condition of the gray space was wider than the green space. Changes in the availability of green space for agricultural land will affect the environmental conditions in Sawahan Village. From the aspect of the physical environment, land change has an impact on damage to land ecosystems and will have a sustainable impact on the occurrence of natural disasters such as floods and landslides. Land changes also affect the quality of groundwater, where 30% of the people of Sawahan Village are no longer using wells as their main source of clean water. The groundwater discharge in the well has also decreased, from 75% of respondents who own wells, as many as 50% said that the surface or well water debit has decreased. Apart from that, air quality will also be affected, where 30% of the people of Sawahan Village admit that there is a significant difference in air quality after the construction of the toll road. From the aspect of the social environment, 70% said that the environment where they live is still relatively good and the need for community facilities and infrastructure is more fulfilled. Meanwhile, from the economic aspect, it has an impact on changes in livelihoods, where 60% have community livelihoods in the non-agricultural sector which are supported by an increase in per capita income of the population. The effect of land change is of course also related to cities and sustainable settlements. Based on the goals of the 11th SDGs, Sawahan Village is classified as still reaching the Significant Challenges Remain level. This is because the targets achieved have been significant but there are still targets that have not been achieved. Therefore, development in Sawahan Village must prioritize and maintain aspects of sustainable development.

Keywords: *land change, development development, green space, agglomeration*

INTRODUCTION

As an agglomeration area for Surakarta City, Sawahan Village is an area that is directly affected and depends on services or the economy of Surakarta City. Sawahan Village also experienced the influence of very rapid development, which was mainly driven by economic growth and population growth. The development

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of a city is influenced by three things, namely ecology, technology and social organization (Valent et al, 2021). An increase in economic and population growth has led to an increase in the need for land for transportation, economic centers and settlements which in turn has led to changes in land use which has resulted in reduced green open space areas. The availability of open land in urban areas encourages the direction of development to suburban areas or peri-urban areas that still have agricultural land so that changes in agricultural land usually occur (Dewi and Iwan, 2014). One of the peri-urban areas, namely Sawahan Village, which is located in Ngemplak District, Boyolali Regency, Central Java, has built a toll road connecting Surakarta-Kertosono, the construction of this road is a real form of land conversion that has occurred due to rapid developments in various sector. The development of an area will have positive and negative impacts, the positive impact that can be felt is an increase in the community's economy which also indicates an increase in education, while the negative impact is an increase in regional burden and reduced agricultural land, causing a decrease in environmental quality which can cause an imbalance in land use patterns when viewed ecologically (Ariesy, 2015).

The urban area itself has green spaces areas and gray spaces areas. Green Spaces area is any area that has vegetation. Areas included in the green spaces area category include agricultural land, public green land, private green land, state land, parks, riverbank areas and floodplains to the coastal zone. Green Spaces area is an area that has ecological functions such as improving air quality, controlling floods and pollution. The most common areas in Indonesia related to green spaces are green open spaces (RTH). Green open space is an area overgrown with various plant vegetation in various strata (Mau et al, 2018). In addition to green open spaces, agricultural land is also the area most vulnerable to land conversion, even though from its function, agricultural land has economic value as a buffer for food needs and has ecological value, namely regulating the water system and absorbing carbon in the air. In general, green spaces areas have experienced land conversion into settlements due to the high population (Naqiyya et al, 2020). Then is the Gray spaces area which is defined as the built environment. Areas included in the category of gray spaces area are buildings, pavements and roads. Many people think that the gray spaces area will become a space barrier for biodiversity because with buildings there are green areas that are victims, but by combining technology and science the current gray spaces area can be one of the provisions of space for biodiversity (Zhang et al. ., 2022). The existence of this form of innovation indirectly becomes compensation and provision of new habitats. There are several forms of gray spaces areas including greenroofs, green walls modifying bricks and tiles that are environmentally friendly.

The Sustainable Development Goals or what are often called SDGs are a continuation of the MDGs (Millennium Development Goals) which contain 17 goals and 169 indicators. One of the goals of the SDGs is sustainable cities and settlements, but unfortunately currently many needs for affordable livable housing are usually not matched by the existence of settlement facilities and infrastructure that meet standards, for example such as waste management, trading areas, public facilities, green open space. (Green Open Space), sanitation and clean water (Kustiawan and Ramadhan, 2019). Currently, many residents who build settlements are close together, so they do not have land to develop green areas

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around their homes, which will have an impact on the availability of groundwater and water runoff when it rains. The existence of settlements is a form of gray spaces area, but sustainable settlements should utilize technology and science to create gray spaces areas that are environmentally friendly (Suligowski, 2021). Therefore this study aims to determine the factors causing changes in land use in the study area and the effect of changes in the availability of green space on agricultural land as a result of developments in the peri-urban area of Sawahan Village, Ngemplak District on the environmental conditions there. In addition, this study also aims to determine the suitability of the conditions of Sawahan Village regarding the 11th SDGs goal, namely sustainable cities and settlements.

MATERIALS AND METHOD

This research was conducted in November 2022. The research area was conducted in Sawahan Village, Ngemplak District, Boyolali Regency. The research instruments used to help fulfill the data in this study include; cameras, stationery, tally sheets, and laptops. Apart from that, interviews were also conducted and the selection of informants used a purposive sampling technique or with certain considerations, that is, the informant was considered the most knowledgeable about the object of research so that it was able to facilitate the object under study. The informants who will be interviewed are the Head of Sawahan Village, housing developers, native residents of Sawahan Village to the affected communities. The types of data used in this research are words and actions, written data sources, documentation and statistical data. Techniques in collecting data using interviews, observation and triangulation. This study uses primary data sources and secondary data. The primary data used is by conducting interviews and observations, while the secondary data is in the form of BPS Boyolali Ngemplak District data for 2000, 2010, and 2020. Data analysis techniques in this study used quantitative descriptive analysis and qualitative descriptive analysis. The description of the interview results will later be strengthened by BPS data, such as data on land use and population growth.

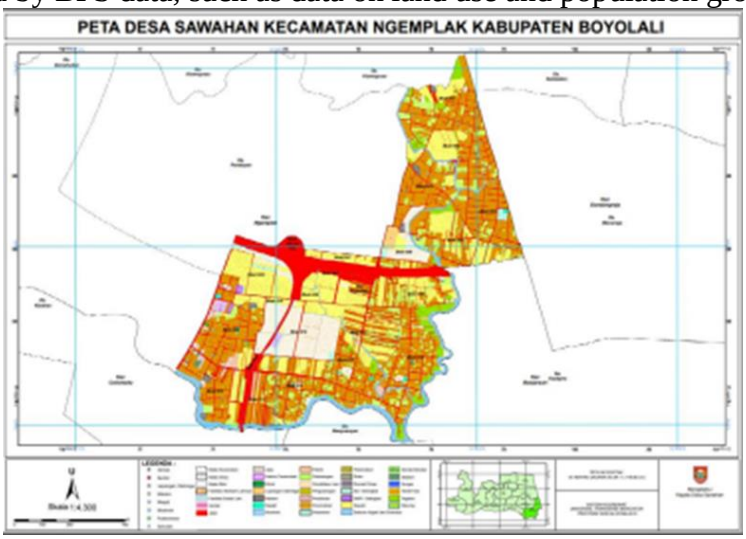

Fig 1. *Research Location Map*

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RESULT AND DISCUSSION

Green Space Existing Conditions

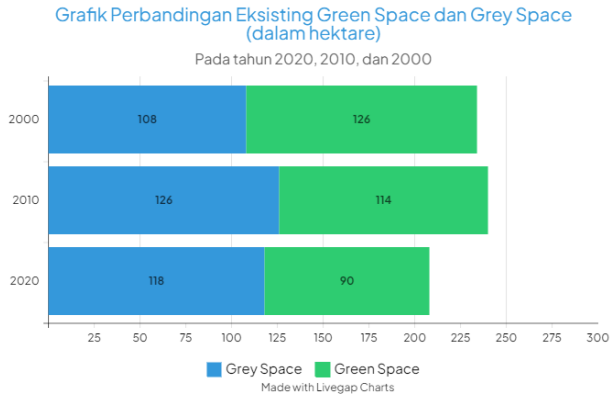

Fig 2. *Graph of comparison of existing green space and gray space*
Search : data analysis(2022)

The existing condition of Green Space in the research area based on direct observation to the location shows that agricultural land is one of the most dominant types of green space. Then followed by private land which is planted with crops and horticulture crops or only grows trees and grass. Based on analysis using BPS data from Ngemplak District in 2000, 2010 and 2020, it has shown that within 20 years the existing conditions of green space and gray space have fluctuated. A comparison of the existing green space and gray space shows: in 2000 the green space condition was wider than the gray space; in 2010 showed that the condition of the gray space is wider than the green space; and in 2020 the condition of gray space is wider than green space (Figure 2. Graph of comparison of existing green space and gray space). The graph shows that in 2000 and 2010 the area of green space in the study area was still larger than the area of gray space. However, in 2020 the existing condition of green space and green space will decrease from 2010. This is due to the construction of toll roads that have used green space and gray space land in the research area. Therefore, the increase in the area of green space in the research area does not leave the possibility that it will continue to decrease in area, especially since the research area is located in the agglomeration area of Surakarta City which will later become a place for residential development so that the development of an economic center.

Analysis of Land Change in 2020, 2010, and 2000

The area of the research location is 265.80 ha, of the total area the land has been used in the form of paddy fields and dry land. The use of paddy fields based on irrigation systems includes technical irrigation land, semi-technical irrigation land, simple irrigation land, and rainfed land. Meanwhile, the use of dry land includes yards or buildings, dry land or gardens, pond land, and other built-up dry land. The results of the analysis of land use change show that during the period 2000 to 2020 there has been an increase and decrease in the area of certain types of land use (Table 1. Transition of land use in Sawahan Village in 2000, 2010 and 2020 in Ha). The highest increase in area occurred in residential land use in 2010, then decreased in 2020. Another increase occurred in other types of open land from 2010 to 2020. Then, paddy fields experienced a decrease for each type according to irrigation. This is dominated by the development of settlements and toll roads. The most significant decrease was seen in the type of open land, after a

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survey was conducted among the people of Sawahan Village, 67% of respondents said that the open land was ready to build land for both housing and small to large scale industries. According to Sadewo (2018), states that any increase in the area of built-up land has the consequence of a decrease in the area of other types of land use. The irrigated rice fields that were most affected were dominantly turned into toll roads.

Table 1. *Transition of land use in Sawahan Village in 2000, 2010 and 2020 in Ha*

	2000	2010	2020
Paddy Field Land by Waters			
Technical Irrigation	56,5	53,05	33,65
Semi-Technical Irrigation	12,5	12,41	11,91
Simple Irrigation	26,9	20	17
Rainfed	18,4	17,37	16
Dry Soil According to Use			
Building	108,6	126,61	118,14
Garden	11,5	11,53	1,6
Pool	0,5	0,35	0,5
Other dry land	168,3	24,42	56,8

Search : data analysis (2022)

In those 20 years Sawahan Village has experienced insignificant increases and decreases. The increase in the use of built-up land is quite large in peri-urban areas. The following graph shows the area of built-up land in 2020, 2010 and 2000.

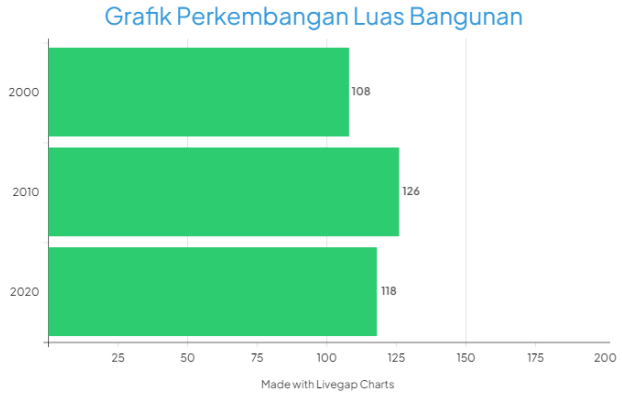

Fig 3. *Graph of building area development in 2000, 2010 and 2020*
Search : data analysis (2022)

Building developments in the study area consist of individual buildings as well as housing developers. The development of buildings in the research area is relatively developed due to the strategic position of the area, which is close to the cities of Surakarta and Boyolali, industrial areas, as well as the economic center area. Apart from that, there is still a lot of undeveloped land that can be used as a building if it is seen as a place for the development of settlements or industrial

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buildings. This is because the research area in 2016 has completed the construction of the Ngemplak Toll Gate which makes the research area busy with economic activity. The construction of the Solo-Ngawi toll road which was inaugurated in 2018 has used several areas of land, one of which is green space land. Affected land includes residential land, irrigated rice fields and offices. of the three affected lands, according to 2018 Sawahan Village administration data, the largest affected land area was irrigated paddy fields of 8.40 hectares. 1.62 hectares of residential land affected and 1.02 hectares of office land affected.

In addition, the increase in population in the past 20 years has also been a trigger for development every year. This is based on the fact that as a result of population growth it will lead to an increase in the need for land resources for residences and all other supporting facilities (Sasongko et al., 2017). Based on the graph of population growth, it shows that in the study locations in the 2000 to 2010 vulnerable years the population did not increase significantly, but in the 2010 to 2020 vulnerable the population increased significantly

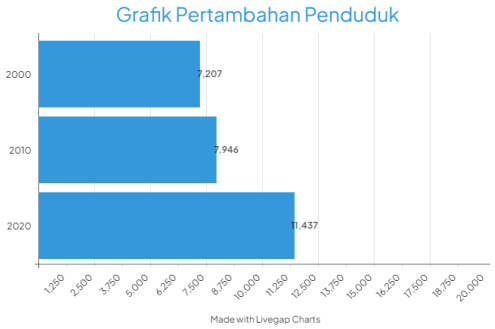

Fig 4. *Population Growth Graph*
Search : data analysis (2022)

Analysis of Factors Causing Development

Sawahan Village is one of the villages in Boyolali Regency which acts as a bridge between the surrounding villages and the city of Surakarta which is a big city. Sawahan Village is also often referred to as an agglomeration. According to (Valent et al., 2021), agglomeration is an area where two or more activity centers gather, and these activity centers grow within regional administrative boundaries in the form of agglomerations of settlements, industry, trade and services, thus forming areas without proper planning. Sawahan Village as an agglomeration has an impact on increasing the use of new land for residential, industrial and infrastructure development which was previously used as agricultural land. Sawahan Village as an agglomeration has certainly experienced development both in terms of settlement centers, industry, social services, and infrastructure. Sawahan Village is also a strategic area because it is a link between the surrounding villages and the city of Surakarta. According to (Wulandari and Priyono, 2017), this is the main attraction for making Sawahan Village land into residential buildings and facilities that meet the needs of the community.

The development trend of an area will also be followed by population growth. Rapid population growth and increasing community demand for land has led to a change or increase in land use for development. According to (Prabowo et al., 2020), the increasing need for land has resulted in the conversion of agricultural land to non-agricultural land. As a result, competition for land use

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will become increasingly fierce, land values will rise, and agricultural land will lose out to non-agricultural land such as industry and housing. The existence of industrial development will also make people switch jobs to become factory employees who earn more than cultivating agricultural land. In addition, infrastructure development will support population movement and encourage community activities. This is supported by the increase in per capita income and the demand for people who live in the area, so that many people are competing to build houses in the Sawahan Village area.

Analysis of The Impact of Land Change Green Space

Any development in all aspects will definitely cause a reduction in the total area of green space. This causes impacts on aspects of the physical environment, such as the amount of green space land area, loss of land use, decreased water quality, loss of infiltration to decreased air quality. One of the problems of the physical environment in the research area is that a lot of agricultural land or paddy fields have switched to non-agricultural functions, especially for housing development. In addition, the research location has not yet provided open space to be used for the benefit of the local community, such as a children's playground.

a. Effect on land

In the Sawahan Village area, environmental problems caused by changes in land use are related to land damage. Land damage refers to changes in land use that do not consider the balance of nature, so that it can damage the shape and function of the land, such as the construction of houses on steep contours and river banks, construction of toll roads, industrial development and infrastructure facilities and infrastructure on agricultural land. Transferring part or all of the land area, commonly known as land conversion from its original designation to another designation, will certainly have a negative impact on the environment (Mubarokah and Hendrakusumah, 2022). One of the impacts of land use change is causing damage to the land ecosystem itself. Land that used to be a green space area, is now a non-green space area which will then have a sustainable impact on natural disasters. Based on (BPBD Boyolali Regency, 2022) the data from the mapping of disaster-prone areas in Boyolali Regency, Sawahan Village has a low level of risk of landslides. This is due to the reduced function of the land as a water catchment area and steep land structures along the river banks due to land conversion. In addition, land conversion will also have an impact on the land ecosystem.

Fig 5. *Construction of houses on the banks of the river in Sawahan Village*

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Search : primery data (2022)

b. Effect on water

The influence on water is divided into 2, namely ground water and surface water. The existence of rapid development triggers the conversion of land from non-developed land to built-up land which can result in a decrease in the level of groundwater sources, contamination of groundwater sources, and a decrease in the discharge of groundwater sources (Noeraga et al., 2020). The people of the Sawah area usually use groundwater as a source of water through drilling or through the construction of wells. The water can later be used for daily needs, such as bathing, washing, cooking and drinking. Based on interview results, 30% of the people of Sawahan Village no longer use wells as the main source of clean water anymore, because well water is no longer suitable for use because there are indications of contamination with marked changes in the color of the water. In addition, the water discharge in the well is also reduced so that the iron content in the water is higher and the water quality is lower. Based on interview results, 75% of respondents who own wells, 50% said surface or water discharge the well is reduced. Therefore, currently some of the people of Sawahan Village use well water only as a reserve water source. In addition to groundwater, surface water problems occur, namely the occurrence of high inundation when it rains. Based on (BPBD Boyolali Regency, 2022) the data from the mapping of disaster-prone areas in Boyolali Regency, Sawahan Village has a moderate level of risk of flooding. This is due to the reduced function of the land as a water catchment area and the minimal amount of green space land area resulting in a decrease in the volume of groundwater and rainwater cannot enter the soil layer, so it does not flow directly into the river (Meilani et al., 2020). Based on the results of interviews, 35% of respondents said that water overflows in their residential area if there is heavy rain. This is because water overflows from the drainage.

c. Effect on air

In Sawahan Village, currently the air problem is not really an issue because in the Sawahan Village area itself there are no large industries that produce pollutant sources. The air problem that is a problem in the Sawahan Village area is pollution caused by traffic activities. Land conversion from green space to toll roads (tax on location) is the main factor causing high traffic activity in Sawahan Village. High traffic activity will certainly have an impact on air quality (Lubis et al., 2022). This is coupled with the lack of green space areas around toll roads resulting in reduced carbon capture areas or emissions resulting from traffic activities. The green space area itself functions as a reservoir for vehicle emissions and provides comfort for the surrounding community because it can reduce the temperature around the toll road (Saroh, 2020). Changes in air quality due to traffic activity can cause respiratory problems, such as asthma, ISPA, and lung cancer caused by dust carried into people's residential areas. Of course not all people who live in Sawahan Village will feel this, only people who live in certain areas will feel disturbances or changes in air quality, such as people who live in toll roadside areas. Based on interview results, 30% of the people of Sawahan Village, especially the people who live around the toll road, admit that there is a significant difference in air quality from before the construction of the toll road and after the construction of the toll road.

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d. Impact on the social and economic environment

Besides affecting the physical environment, land conversion also affects the social and economic environment in Sawahan Village. According to (Dewi and Rudiarto, 2014), changes in social and economic environmental conditions related to the development of physical development in the Sawahan Village area include: a decrease in the quality of the settlement environment, livelihoods, and residents' income. Based on the results of the questionnaire, the majority of respondents, namely 70%, said their living environment was still relatively good, even 5% of respondents said their environment was very good. This is because their needs for facilities and infrastructure are more fulfilled, and the area where they live is located in an area where there are no problems related to the physical limitations of the environment. However, 25% of respondents said their environment had deteriorated due to land changes. This is because their place of residence is located in a slum area, such as on the edge of a river, or a landfill as the final disposal site for the remaining waste resulting from anthropogenic activities. This situation is also getting worse because environmental sanitation is not being paid attention to, such as garbage sanitation, sewers that are not planned properly so that it has an impact on the surrounding community. From the economic aspect based on the results of the questionnaire, the majority of respondents work in the non-agricultural sector with a percentage of 60%. While 40% of respondents own land or work in the agricultural sector. The large number of people's livelihoods in the non-agricultural sector is supported by an increase in the per capita income of the population living in Sawahan Village. Due to economic factors, the community also sells their land and volunteers to make it into buildings such as industries and infrastructure. Changing land into industrial areas has forced people to switch jobs to become factory employees with higher income levels. In addition, the use of land for housing and business centers offers various advantages from the economic aspect. However, not a few people choose to defend their land and make it a rice field for their daily life.

Sustability of The Conditions of Sawahan Village Regarding the 11th Goal of The SDGs

The basic principle of sustainable development is that the progress of the current generation must not sacrifice the ability of future generations to prosper because the sacrifices made in the form of social welfare are lower than that of the current generation (Rosana, 2018). One of the efforts in implementing development is through the SDGs. The SDGs (Sustainable Development Goals) consist of 17 goal points and 169 targets which are expected to be achieved by 2030. One of the goals of the SDGs is to realize Inclusive, Safe, Resilient, and Sustainable Cities and Settlements (Sustainable Cities and Communities) contained in the goal from the 11th SDGs. The 7 targets are expected to be achieved in the 11th SDGs.

Ensuring access for all people to adequate, safe, affordable housing and basic services, as well as managing slum areas is the first target of the 11th SDGs which is expected to be achieved. Based on (PPID Boyolali Regency, 2018) data on the results of the implementation of housing and residential areas in Boyolali Regency, the Boyolali Regency government created the “Kotaku” program to create livable, productive and sustainable urban settlements. Based on the

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observations that have been made, the conditions of the settlements or housing in Sawahan Village tend to be suitable for use, although there are still several houses that are unfit for habitation (RTLH). In Sawahan Village there are also settlements that are not in accordance with the arrangement of the housing environment that is suitable for settlements, such as residential areas built on riverbanks. Development of residential areas on riverbanks can threaten the safety, comfort and health of its inhabitants, and turn the area into a slum area in Sawahan Village. The slum areas in Sawahan Village are caused by the not optimal handling of urban slum areas and the low quality of residential services and the uneven integration of infrastructure networks in alleviating environmental degradation in slum areas.

Providing access to a safe, affordable, easily accessible and sustainable transportation system for all is the second target of the 11th SDGs which is expected to be achieved. Based on the observations that have been made, the condition of the transportation system in Sawahan Village is classified as getting better and the traffic conditions are less congested. In addition, the provision of infrastructure or various other means of transportation is also quite good. This is evidenced by the construction of the Ngemplak toll gate and the construction of the Solo-Ngawi toll road which was inaugurated in 2018.

Increasing substantially the number of cities and settlements that are integrated with climate change and disaster resilience is the third target of the 11th SDGs which is expected to be achieved. Based on (PPID Boyolali Regency, 2018) data on the results of the implementation of housing and residential areas in Boyolali Regency, the Boyolali Regency government created the “Kotaku” program to create livable, productive and sustainable urban settlements. The program is also expected to be technically capable of being integrated with other programs. Based on the observations that have been made, Sawahan Village itself is substantially capable of integrating several residential areas. Settlements in Sawahan Village are able to be integrated with climate change that occurs and are resistant to disasters such as floods, and are able to be integrated with the community's economic sector and other areas.

Promoting and maintaining world cultural heritage and world natural heritage are the fourth targets of the 11th SDGs which are expected to be achieved. Based on the observations that have been made, in Sawahan Village there are no cultural heritage areas and world cultural heritage. So that there is no management of cultural heritage in Sawahan Village. However, the large number of immigrants who entered and lived in Sawahan Village caused the original culture of the region to be slightly disturbed. This is evidenced by a number of people who are more individualistic and don't really care about social life. With the new culture entering Sawahan Village, schools in Sawahan Village introduce regional cultural and regional history education to children at an early age which is expected to be able to maintain the original culture of the Sawahan Village area.

Reducing the number of deaths and the number of people affected by disasters is the fifth target of the 11th SDGs which is expected to be achieved. Based on (BPBD Boyolali Regency, 2022) the data from the mapping of disaster-prone areas in Boyolali Regency, Sawahan Village has a moderate level of risk of flooding and has a low level of risk of landslides. Based on the interviews that have been conducted, the disaster that has occurred in the last 5 years is the flood

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disaster. The flood disaster that occurred in Sawahan Village did not cause any casualties, but many people were affected by the disaster, especially when the embankment broke in 2021. The floods that occurred in Sawahan Village occurred due to the reduced function of land as a water catchment area and the lack of management in reducing flood disaster.

Reducing the detrimental per capita urban environmental impacts, including by paying special attention to air quality, including handling municipal waste, is the sixth target of the 11th SDGs which is expected to be achieved. Sawahan Village is a bridge between the surrounding villages and urban areas, or often referred to as agglomeration areas. Sawahan Village as an agglomeration area has certainly experienced development both in terms of settlement centers, industry, social services, and infrastructure. However, the implementation of development development has not been in accordance with environmental aspects. The construction of a toll road in Sawahan Village, for example, has resulted in high traffic activity which of course has had an impact on air quality. Even though there are several green space areas around toll roads, these areas are not yet efficient for carbon capture or emission areas, so efforts are needed to expand green space areas around toll roads. In addition, the development of settlement development in Sawahan Village has led to an increase in the amount of waste produced. Moreover, the level of awareness regarding waste management is still lacking. Based on the observations that have been made, there are still many people who litter, especially people who live on the banks of the river. People who live on the banks of the river tend to throw their garbage directly into the river so that it can cause river pollution. Therefore, it is necessary to carry out waste management that can contribute significantly to the achievement of sustainable development. Based on the interviews that have been conducted, Sawahan Village has built a TPS in order to reduce waste that is disposed of carelessly, but TPS management has not gone smoothly because the party that made the TPS has not taken care of the TPS properly. TPS promised to transport the waste every three days, but it has not been transported for almost a year. This resulted in the volume of waste increasing and mounting. The mountain of garbage then gives rise to a very pungent odor. But at this time the polling station has been closed. Therefore, in Sawahan Village, waste management is still needed to achieve sustainable development.

Providing public spaces and green open spaces that are safe, inclusive and easy to reach, especially for women and children, the elderly and people with disabilities is the final target of the 11th SDGs which is expected to be achieved. Based on the observations that have been made, in Sawahan Village there are still no artificial green open spaces (parks), but the existing conditions of green open spaces in Sawahan Village still dominate. However, in line with developments in the development of green open space areas, this will decrease due to the conversion of land functions into industrial areas, settlements, as well as transportation facilities and infrastructure. This is evidenced by the construction of a toll road in Sawahan Village which causes a reduction in green open space which will have an impact on reducing environmental quality.

Based on the results of an analysis of the 7 targets that are expected to be achieved in the 11th SDGs that have been carried out, the targets in the 11th SDGs that have been achieved in Sawahan Village are the target of providing access to a

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safe, affordable, easily accessible and sustainable transportation system for all , the target to substantially increase the number of cities and settlements integrated with climate change and disaster resilience, the target to promote and maintain world cultural heritage and world natural heritage, and the target to provide public spaces and green open spaces that are safe, inclusive and accessible . Even though this target has been successfully achieved, the people of Sawahan Village should be able to improve and maintain that this achievement does not decrease. As for the target in the 11th SDGs goal that has not been achieved in Sawahan Village, namely, the target is to ensure access for all people to decent, safe, affordable housing and basic services, as well as managing slum areas, the target is to reduce the number of deaths and the number of people affected by disasters, and targets to reduce the adverse per capita urban environmental impact, including by paying special attention to air quality, including municipal waste management. Therefore, Sawahan Village is classified as still reaching the Significant Challenges Remain level. This is because the targets achieved have been significant but there are still targets that have not been achieved. In addition, in the process of achieving the 11th SDGs targets in Sawahan Village it has increased from year to year.

CONCLUSION

Sawahan Village which is a strategic agglomeration area and has experienced development progress and is the main factor in land change in Sawahan Village which is characterized by the declining condition of the existing green space in the vulnerable years 2000 - 2010 - 2020. In addition, this development development has also triggered the occurrence of population growth that causes a change or increase in land use for development in meeting needs. This is marked by a significant increase in population in the 2010 - 2020 vulnerable years, even though population growth did not increase significantly in the 2000 - 2010 vulnerable years. Changes in the availability of green space for agricultural land as a result of development developments in the peri-urban area of Sawahan Village will certainly have an impact on environmental conditions, both physical environment and social and economic environment. From a physical aspect, the change from agricultural land to non-agricultural land has an impact on damage to land ecosystems which will then have a sustainable impact on the occurrence of natural disasters such as floods and landslides, groundwater has indications of contamination by marked changes in water color, decreased groundwater discharge, and changes in air quality due to traffic activity. While from the social aspect, the majority of the needs for community facilities and infrastructure are more fulfilled, and from the economic aspect it has an impact on changes in people's livelihoods in the non-agricultural sector which is supported by an increase in per capita income of the population. Based on the goals of the 11th SDGs, Sawahan Village is classified as still reaching the Significant Challenges Remain level. This is because the targets achieved have been significant but there are still targets that have not been achieved, but in the process they have increased from year to year.

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