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Women's awareness raising in the development of ecotourism: Evidence from Glugut Park Yogyakarta, Indonesia

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ABSTRACT

Awareness is a driving force for women to be involved in ecotourism management. With objective awareness, they will become tourism actors who can play an active and productive role in providing tourism services to visitors. This study aims to determine the rise of awareness in the development of ecotourism. Women's awareness in ecotourism management needs to be developed in order to ensure the existence of tourism to be more useful and enable women's active participation in it. This research used a qualitative approach. The subjects of this research were the manager coordinator, tourism manager, members of Dasawisma, and the local community in the Glugut Park Tourism, in Bantul, Indonesia. Their participation was decided by purposive sampling. Data collection techniques used were observation, interviews, and documentation. The data validity was done by triangulating the source and extended observation. The results show that increasing women's awareness can eventuate and be impactful toward their active participation in the tourism management. Therefore, for optimal result, women's capacity improvement with regard to local-potential-based tourism development needs to be fully worked on so that they will get additional meaningful effects.

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INTRODUCTION

Special region of Yogyakarta, Indonesia, is a province famously known as tourist destination region due to the numerous beautiful tourist destinations in this province. Administratively being one of the five districts in this province, Bantul Regency is divided into 17 districts such as Srandakan, Pundong, and Dlingo, among others. Each district has tourist destinations with their uniqueness and characteristics. Tourist destinations in Bantul are places where natural, cultural, historical, artistic, and other beauties can be enjoyed. They become the attractive aspects of the tourism sector in Bantul Regency. Based on data from the Bantul Regency Tourism Office, there are 257 tourist destinations in Bantul consisting of 60 natural tourism objects, 10 artificial tourist objects, 61 handicraft tourism objects, and 38 tourist villages. This large number makes Bantul Regency a thriving tourist destination for both local and foreign tourists.

Even though there are many tourist attractions in Bantul Regency, tourist visits are still limited to natural beach tourism especially to Parangtritis Beach. This is due to the uneven distribution of exposure among tourist objects, which has an impact on the inequality of community economic development. Tourist visits in Bantul Regency in 2019 increased up to 3.9 million

people. Previously in 2018 there were 3.6 million visitors (BPS, 2019). The increase in tourist destinations and tourist visits has had its own impact, both the positive and the negative ones. Some of the negative impacts that occur are tourists' lack of awareness to dispose garbage to trash bins, the non-optimal cleanliness management, and the environmental exploitations on the tourist attraction areas (Febianti & Urbanus, 2017).

The emergence of ecotourism is a reaction to the negative impacts of mass tourism development. Ecotourism can be defined as a natural tourism activity that contributes directly to the protection of species and habitats as a base of attractions and indirectly provides economic benefits for tourism for local communities. In other words, ecotourism can balance conservation efforts and development programs. Ecotourism protects natural and cultural resources, leads to learning opportunities, and is based on sustainability principles (Fennell, 2015; Mgonja et al., 2015). Ecotourism development is the key for communities to improve their quality of life in terms of economics, social, and other aspects, and this development may be reflected in the increasing income, the augmented conservation of animals, the triggered creative economic activities, the developing standard of community life, etc. (Jaafar & Maideen, 2012; Ramaano, 2021; Wardle et al., 2021).

Ecotourism development is inseparable from the involvement of women, who have an integral part in the ecotourism development. Women ideally have optimal involvement in the successful implementation of the tourism program development that can boost tourist yields and visits. Unfortunately, due to the result of the gap between men and women, tourism operators are dominated by men. Society tends to have a mindset that puts women in a lower position than men. Some research discovered that there are gender disparities in environmentally friendly tourism development where women are marginalized in terms of involvement, competence, internal barriers, and external obstacles (Freund & Hernandez-Maskivker, 2021; Nurhaeni et al., 2018). Likewise, Chant, in Sinclair's research which was conducted in Mexico and the Philippines, showed that the role of women in the tourism sector is still limited to domestic roles because women cannot be separated from their main role as housewives (Sinclair, 1997). In the macro-context, the role of women in tourism sector is minimum although according to the United Nations World Tourism Organization (2019), 54% of workers in the tourism industry are women.

The awareness of women in ecotourism management is an important key for them to contribute as a whole, so that women will be able to carry out their roles as agents of change in ecotourism development to provide welfare, especially for their people (Ribeiro et al., 2021; Vukovic et al., 2021; Zhang et al., 2020). This awareness shows that they have the same rights and obligations as men in making use of natural resources. Thus, women's conceptual role is expected to be a means of equalizing development and overcoming economic disparities. Self-awareness is defined as the ability to understand the condition of oneself and the environment that encourages them to take actions that lead to the specified goals. Consciousness is awakening, not fainting: awakening from a helpless state, awakening from daydreams. It can be more deeply interpreted as being cognizant, knowledgeable, realizing one's state, being aware of the behavior before and after it. This state of awareness can guide a person to choose what actions he can take, such as doing a good deed or committing a bad behaviour. This act of choosing is governed by his mind and thought.

Women's consciousness is formed through a sequential or gradual process (Geller, 2001). A person who is aware, according to him, will go through a stage, namely unconscious incompetence, which is the first stage where someone does not understand what to do, and then conscious incompetence, which is the second stage where someone understands or knows what should be done, but must learn how to do it first. Then comes the conscious competence, which is the third stage where people can do the right things because they have followed predetermined rules, and unconscious competence, where someone has a habit and knows exactly what he is doing.

In the context of change, there are three stages of the change model (Lewin, 1945). First stage of unfreezing is more focused on creating motivation to change and being willing to open up by showing a gap between goal and reality so that change, survival anxiety, and defensiveness and resistance are needed in the organization. At this stage, it is necessary to analyze the needs for change and acknowledge the need for change and individual readiness so that individuals are willing to open up and start changing the situation to the new condition.

Table 1. Analysis of Consciousness Theories

Theory	Magical consciousness	Naive consciousness		Critical consciousness
Geller (2001)	Unconscious incompetence "bad habits"	Conscious incompetence "learning"	Conscious competence "rule governed"	Unconscious competence "safe habits"
Lewin (1945)	The initial stages of change (*unfreezing*)	The stages of the transition process (*movement/changing*)		The stages of sustainability (*refreezing*)
Freire (1985)	Magical Awareness	Naive Awareness		Critical Awareness

The second stage is movement or changing, carried out by analyzing the gap between the desired status and the status quo and examining the appropriate change programs to be carried out in order to provide optimal solutions to reduce resistance to change. This stage is performed in smaller sub-stages and new efforts are made to eliminate the old methods. In reaching the stage of the transition process (movement/changing), the learning stages can be conducted by (i) trying and opening up efforts to create new conditions; and (ii) initiating a transition with new information, new models, and ways of perceiving things so that individuals can learn new concepts/points of view.

The last stage is refreezing which includes activities to keep new behaviors running by developing new self-concept and identity and new interpersonal relationships. At this stage, the focus is more on the efforts to strengthen the changes that have been made so that they can run well, dynamically, and stably. In the continuation stage (refreezing) the changes that occur are stabilized by means of (i) providing opportunities for individuals to demonstrate new attitudes and behaviors (points of view); and (ii) habitual changes to new ones (re-freezing) so as to eliminate old methods.

Another scholar named Paulo Freire added a precious thought on consciousness to this discussion. Consciousness, according to him, are categorized into three: magical, naïve, and critical (Freire, 1985). Magical consciousness is an awareness of people who are unable to know the relationship between one factor and another. For example, the poor are not able to see the relationship between their poverty and the political and cultural system. Magical consciousness sees more factors outside of humans (natural and supranatural) as causes and powerlessness. Naive consciousness, which is a public consciousness, sees the human aspect more at the root cause of society's problems. In this consciousness, ethical issues, creativity, and 'need for achievement' are determinants of social change. Accordingly, when analyzing why a community is poor, people believe it is because the community itself is "wrong", because they are lazy or do not have an entrepreneurial spirit. Therefore, manpower development is something that is expected to trigger changes. Critical consciousness is awareness that looks more at aspects of systems and structures as the source of problems. Individuals who have critical awareness will be able to critically analyze and understand social, cultural, political, and economic conditions and their consequences on life. From the three theories, thecomparison is presented in Table 1.

Analyzing the aforementioned table, researchers concluded that the three theories share some striking similarities: (i) the first stage of each theory shows the individual's unconsciousness of the problem at hand and focuses on motivating the individual for changes that need to be made; (ii) the second stages of the three theories discuss the existence of "learning" or learning related to how to solve a problem and make new efforts (movement) to eliminate old ways; and (iii) then the third stage comes, in which the individual is able to analyze the problem, think of a solution, and handle the problem correctly and strengthen the changes that have been made so that the changes can run well, dynamically, and stably. Based on this theoretical analysis, a scheme of the stages of awareness formation can be developed as follows.

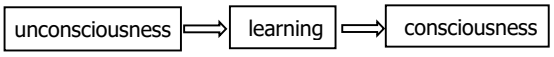

Figure 1. Stages of forming consciousness

Thus, efforts are needed to boost women's involvement in tourism through improving awareness as was done by ecotourism managers. The process of building awareness is needed to shape behavior towards conscious and caring behaviors so that the women feel they need to raise their capacity and desire in improving their conditions. The awareness process can be carried out through women's empowerment activities, where the empowerment of

women in the development of ecotourism in Glugut Park can provide equal space for women to take part in the tourism sector.

RESEARCH METHOD

Belonging to case study (Creswell & Creswell, 2018), this research was conducted with the intention to understand how women's awareness raising occurs in tourism management. The research was conducted at Glugut Park Tourism, *Dusun* (hamlet) Wonokromo I, Wonokromo, Pleret, Bantul. The selection of location was the result of the observed self-reliance of the local community due to their initiative to develop natural potential. Glugut Park Ecotourism is one of the tourist attractions in Bantul Regency which is built in a bamboo garden. Administratively, most of the ecotourism area of Glugut Park is located in Wonokromo I Hamlet, Wonokromo Village, and a small part of it resides in Segoroyoso and Trimulyo Villages. Natural potential, in the form of river named Kali Opak and the presence of bamboo clumps, constitutes uniqueness in the Glugut Park area. The development of Glugut Park ecotourism is not only for tourist attractions, but also aims to empower the community, so that the project can have a good impact on the lives of the surrounding community in terms of economy and social and cultural life.

In this study, the data source was selected by purposive sampling, which is a sampling method based on particular considerations. The selection of this subject was determined based on the subject's involvement in activities at the Glugut Park Tour. These considerations led to the decision that the subjects of this study were the coordinator of the Glugut Park Tourism, the manager of the Glugut Park Tourism, members of the Dasawisma Wonokromo 1, and the people of Wonokromo I Village.

In this study, the researchers used data collection techniques by means of observation, documentation, and interviews. The researchers employed a non-participatory observation, which means that they did were not directly involved in the process of implementing awareness raising. The researchers were capable of observing awareness raising activities including routine meetings, selling land management, and environmental preservation, but did not directly get involved in awareness raising activities at Glugut Park ecotourism. Although it was planned that this research would employ a well-planned interview, in practice the interview remained flexible, open, relaxed, and full of kinship. Interviews were conducted with the management coordinator, tourism manager, Dasawisma, and local communities involved in the Glugut Park ecotourism, and the topic of the interview was regarding efforts to increase the awareness of women. The documentation was performed to complement the results of the research. The documents used in this study were the descriptions of activities carried out in Glugut Park ecotourism related to awareness raising activities.

The data analysis referred to the interactive analysis model from Miles et al. (2014) which stated that the data is analyzed interactively, continuously, until it reaches data saturation. Data analysis in this study consisted of data reduction, data presentation, and making conclusions. To ensure the validity of the data, the triangulation technique was used. The triangulation used in this study was the triangulation of data sources, namely by checking the data that had been obtained through several sources. The ultimate goal of this triangulation was to contrast information of the same thing obtained from various parties so that the level of data confidence achieved. This step was taken to avoid the subjectivity of the researchers, so that the research results are valid and can be accounted for.

RESULT AND DISCUSSION

Glugut Park Tourism Management

Glugut Park Tourism is a tourist object built in a bamboo garden. The name of Glugut itself comes from the Javanese word which means a smooth layer like bamboo tree hair which is known to cause itching if it sticks to the skin. Initially, Glugut Park was just a plot of land, whose size was about 1 (one) hectare, on the banks of the Opak River which was filled with many types of bamboo trees (Figure 2). Blessed with these existing unique natural features and by the initiatives of the surrounding community, Glugut Park then saw its distinctive potential be developed by the community to become a new tourist destination. Glugut Park Tourism is geographically located at Wonokromo I Hamlet, Wonokromo, Pleret, Bantul regency.

Figure 2. Tourism activities at the Glugut Park

The purpose of establishing Glugut Park Tourism is not solely for tourist attractions, but also to empower the community. Thus, it is expected that this park can bestow a good impact on the lives of the surrounding community in terms of economy, as well as social and cultural lives. In line with the purpose of the establishment of the Glugut Park Tourism, the forms of activities in the Glugut Park Tourism are adjusted so that they benefit the surrounding community. The forms of these activities include tourism, educational, economic, and socio-cultural activities.

The management of the Glugut Park area was initially run by the association consisting of residents of Wonokromo and Segoroyoso Villages where the Glugut Park is located. Management of this area was still run "traditionally" by the association without any formal institution handling the management of the tourist area. However, under the new management structure at Glugut Park Tourism Site, there were five people working as coordinator, secretaryI, secretary II, treasurer I, and treasurer II. The structural management of Glugut Park Tourism also included a protector. Tour managers were recruited by voting and considering the feedback from community leaders. There were no special qualifications related to age and education level to become the manager of Glugut Park Tourism.

To include and develop ecotourism program, it is a certainty that Glugut Park requires the involvement and complete support of the local community with no exception. However, during the development process, people's involvement in the ecotourism of Glugut Park was still minimum due to low awareness of community on the activities. Thus, the tourism manager of Glugut Park decided to include awareness efforts in the tourism development.

Increasing Awareness of the Women

In the empowerment process, the awareness stage is an important key because at this stage there is a formation of particular behaviors, i.e. behavior towards conscious and caring behavior, so that they feel the need for self-capacity improvement. The awareness-raising stage consists of three phases.

1. Unconscious stage

The unconscious stage commences when individuals start having unawareness of the problem at hand and focus on motivating themselves that changes need to be made. The research observed that at this the unconscious stage, the manager directly invited and involved women in various activities at Glugut Park Tourism. In their involvement, they still felt reluctant to participate and didn't feel the need to be involved. This shows that they actually did not know what to do so that managers were directly involved themselves, showing they were willing to open themselves up to a change. The chief of "NAS" tourism management stated,

> *"Yes, it is clear that we had to invite them. At first, we just invited them casually. Then such invitation was delivered in the Rukun Tetangga (RT/ neighbourhood community) meeting. We also carefully invited them personally because women in this neighbourhood were rather reluctant to participate in this movement. Well, finally, some were willing to participate although the rest were still reluctant. We established coordination with the Dasawisma coordinators. They were taking part by occupying the trading spot to sell things. Most importantly, we need to approach them to*

understand what they want, so they are willing to participate. Of course we can't coerce them into participation if they are not willing."

According to Lewin (1945) in the theory of change models, there is an unfreezing stage or a disbursement process that encourages individuals to open up so that they can accept a change. An understanding of these changes needs to be done by stakeholders that awareness of changes will bring greater benefits. Accordingly, the manager, as an empowering party, tried in various ways to impart awareness of their potentials on the local women so they were willing to be involved in tourism development. Efforts made by managers in raising awareness were through socialization, motivation building, and involvement in ecotourism development programs. Socialization was carried out by the tour manager during RT meetings and routine meetings of the Dasawisma members. The purpose of this socialization, which included building knowledge, attitudes, and motivation, was to foster willingness to change in the self-employed women. Such socialization was very important to change the mental attitude of the target group, forming a mindset to move forward and desire to change. Motivation becomes the basis for someone to take an action, especially motivation to be involved in an ecotourism development program.

2. Learning stage

The learning stage is a process of transitioning a person from not knowing to knowing through learning by trying to open himself up to accept new things. The community would undergo a learning process about knowledge and skills relevant to the demands of their needs. These demands included increasing participation in ecotourism development which could be achieved through education and training. Related to this stage, the manager facilitated the women through various efforts to provide information and new ways of seeing things so that they could learn and as a result they would have a new perspective.

Several efforts were made through activities that involved women. Firstly, cooking training and skill learning, resulting in a change in the behavior of the target group related to awareness of the utilization of local potential and a desire to improve self-quality and develop the economic income of the Dasawisma group. Training on cooking and other skills were provided for the women to develop their potentials. The training planincluded technical preparations which facilitated the training implementation, such as deciding and preparing the required tools and materials and also the place for the training, which was carried out by the management in cooperation with the training organizers. Before the learning session took place, the target group was adjusted to the leaning conditions as to allow them to comfortably participate in the learning process. Following which, learning of the theories and practices was conducted through lectures, discussions, question and answer sessions, and practices to develop correct attitudes, knowledge, and skills of the target group. Lastly, team building and evaluation were performed to motivate the women to gain better incomes through the group. Later, an evaluation of the training was carried out by the management and the target group.

Secondly, provision trade activities area, where people could sell a variety of local foods such as *tiwul, gethuk*, and vegetable porridge, as well as traditional child's toys, as the output of the training. In practice, the trading activities on the plots provided took place on Monday to Sunday based on the preset schedule, and also on Sunday *Pahing* (*Pahing* is the first day based on Javanese calendar) during the event of *Wulang Glugut* Market. Shift schedules for stalls were decided by the Dasawisma itself, which consisted of 3 (three) groups. Members of the groups were assigned daily to stand by or sell merchandises in the tourist spot. The commodities sold in the Dasawisma stands were local foods, such as *tiwul, gethuk*, and vegetable porridge, and traditional child's toys. In addition, Dasawisma provided catering to visitors performing an event in the tourist resorts as long as those visitors had already placed their orders previously. Income from the sales, according to Dasawisma coordinator, Ms. "D", did not go to the individuals but were transferred to the Dasawisma group treasury.

"(There is) no personal economic benefit, I believe, because the profits are for public interest and go to Dasawisma treasury."

Third, the management instilled motivation by personally approaching each member of the Dasawisma. Tourism Manager "SH" explained that it provided motivation "When coordinating meetings and when we meet at tourist attractions, we often give encouragement, directions, and explanations so that everyone remains enthusiastic about being involved here". The manager also always gave motivation and encouragement to the Dasawisma members if they looked less enthusiastic and started to slowly withdraw from the activities. The motivation given by the

manager could have a positive effect on the Dasawisma members so as to build the capacities of the Dasawisma members to involve themselves in awareness-raising activities.

3. Conscious stage

The conscious stage is a state in which a person is able to control his mind, feelings and behavior and know himself. Consciousness can make a person choose to act good or bad. Consciousness is awareness or deliberate behavior in which an aware mind regulates the thought and makes choices about what is desired, for example good or bad, beautiful or ugly, and so on. The results of the research showed that at the conscious stage, the local women began to be aware and were able to accept changes. Their mindsets and perspectives changed for the better and they were willing to be involved in the development of ecotourism in Glugut Park. Changes in behavior, as well as the formation of initiative and ability and skills, made Dasawisma members able to form self-reliance abilities. This self-reliance was marked by the community's ability to form initiatives, start creating things, and make innovations in their environment. The initiative was put into realization by selling food and crafts that they learnt from the previous training. This explains why the female members of the Dasawisma are able to create and innovate the products they sell such traditional toys, culinary product, and handicrafts.

Increased awareness can be said to be successful if there is a change within the humans-in-question. Changes in the women's behavior were shown in the aspects of knowledge, attitudes, and skills. In the aspect of knowledge, the results of research in the field indicated that there was a change in women's knowledge after participating in awareness improving activities. In the aspect of knowledge, women got new knowledge and insights. While and after joining awareness raising activities in Glugut Park ecotourism, women became aware of the tourism potentials and how important their involvement was. This aspect of attitude was manifested in the women's acceptance to new things, even though at first, they were still skeptical. The accepting attitude of those women was visible when they continued participating in various activities. They wanted and paid attention to the stimulus provided by the manager, by participating in awareness raising activities. The positive responses given by women to various activities conducted by the manager allowed the activities to run well and smoothly.

Behavioral changes in the aspect of action were manifested in women's perception which saw changes as a positive thing. With this positive perception, they could choose to participate in awareness raising activities, such as outreach and training. Consequently, they began getting used to new things, such as their participation in tourism development. They then adopted the results of the training by developing and modifying products they learnt during training, to be sold at the Glugut Park ecotourism site. Adoption is the highest level of action which shows that there was an increase in awareness of the female members of the Dasawisma.

Awareness Raising Process

1. Access in ecotourism development

Access in this case is an equal right between men and women in making use of productive resources in the environment, i.e., the development of Glugut Park ecotourism. Evidentially, providing access to women shows that women can play an important role in the development of ecotourism. Ecotourism itself consists of three main principles namely principles of conservation, principles of community participation, and economic principles (Page & Ross, 2002). The research discovered that the access given to women was involvement in the culinary sector and environmental care, while men were more concerned with tourism management. In the culinary sector, they were involved in selling in tourist areas and managing the stalls that had been provided. Meanwhile, in environmental care, they helped clean the tourist area from trash and helped plant new bamboo seedlings for reforestation (greening) of the tourist area.

2. Participation in ecotourism development

Empowering women aims for the women's participation in utilizing existing resources. The results showed that the women's participation was considered sufficiently good, although not all of them were involved. The form of their participation included manpower, thoughts, belongings, skills, and social involvement. Participation in the form of manpower was observable from their involvement in maintaining a clean environment to providing food when there was an event at Glugut Park ecotourism. Furthermore, social participation was tangible by their presence or involvement in various activities and regular community service at RT 02. Women's participation in

the form of skills was evident when the women sold the products that they made at the Dasawisma stalls as the results of training, such as processed traditional food and some traditional crafts and toys. Not only that, those women also contribute their belongings to participate, as they paid regular fees or funding for tourism development. The participation in the form of thoughts was displayed when the women shared their thoughts and ideas for the sake of the development of Glugut Park ecotourism during a coordination meeting with the manager.

3. Control between men and women

There isan equal opportunity displayed between men and women to exercise control over existing resources in the development of ecotourism. The control given is the power to make decisions in the development of ecotourism. This control thus requires women to be able to implement the learning outcomes they received, so that they can take part in managing ecotourism, which includes decision making. The results showed that the opportunities that women had in developing Glugut Park ecotourism were opportunities to take care of tourism, the environment, and the river ecosystem, keeping them beautiful and alive. As confirmed by Nurhaeni et al. (2018) in their research, women play a maintenance role in managing environmentally friendly tourisms, especially through their function as environmental educators for families and communities. This role is carried out properly, without neglecting local socio-cultural values, because women are friendlier to nature. This role is an important key to maintaining and keeping environmental quality in tourism development, so that existing tourism not only meets economic principles, but also obeys ecological and socio-cultural principles.

4. Benefits felt by women

Empowerment efforts are said to be successful if the empowerment target feels benefits. The benefit in this case is that men and women both enjoy the benefits of the use of resources and the benefits of the empowerment process itself. The results of the study showed that they got economic benefits, in the form of being able to create jobs in the tourism sector so that their income increased. In the socio-cultural field, there was an increase in community solidarity and respect for cultural values that exist in society. They sensed a social bond, *silaturahmi* (good relationship), and joy from their involvement in the tourism management. Meanwhile, the benefits in the environmental sector were maintained environmental cleanliness and preservation of river ecosystems.

Inhibiting Factors

In an effort to augment women's awareness in Glugut Park ecotourism, there were problems that hindered managers to carry out activities. This inhibiting factor caused the awareness raising process to not run optimally. Internal inhibiting factors in the process of increasing awareness in Glugut Park ecotourism were obstacles that came from within groups and programs. Basically, the tourism manager of Glugut Park really wanted to develop their tourism to be even better. However, the obstacles prevented the activities they managed from running optimally. Each manager had other different jobs so that they made different activities. The intensity to manage empowerment activities for managers that took up quite a lot of time made managers perform less optimally in tourism development.

The manager's knowledge and insight into tourism and tourism management, which is one of the basic assets in developing ecotourism, was still low. Most of the awareness raising and empowerment activities were carried out by external parties in collaboration with tourism managers. Then, the unclear management transition also hampered the implementation of empowerment activities. The transition of management from the old to the new one was still confusing and was not fully decided by local stakeholders. Thus, there was a vacuum of management that loomed over Glugut Park ecotourism. In addition, the self-awareness of the target group was still low because of the existing public mindset stating that women are better off at home, and tourism activities are mostly managed by men. Thus, there was a need for a personal approach to convince women to participate. Apart from internal inhibiting factors, there were external inhibiting factors which were obstacles coming from outside the group or program. The existing problems on the land lease with land owners hindered the implementation of empowerment activities. The legality of the land in the area was under private or individual rights leased by the manager, thus opening the way for the future management of the Glugut area to become private management.

The existence of obstacles in the effort to increase people's awareness caused the empowerment process

to run less optimally. As a consequence, the managers, as the main actors in the awareness raising process, made various efforts to overcome these obstacles. They were (i) doing coordination through RT meetings and management forums, (ii) acting with utmost deliberation and caution with collaborative parties, and (iii) conducting mediation and deliberation with landowners. Although efforts have been made to overcome the obstacles, the legality problem of land leases has not been resolved thoroughly.

Empowering Women

Ecotourism development requires the involvement of the women living in its neighborhood because they are an integral part of actors having interest in the tourism management. Women are expected to perform meaningful activities in their attempt to manage the tourism services (Çiçek et al., 2017; Duffy et al., 2015). The findings show that women contributed to the nature tourism management in the form of their involvement in the process of tourism activities such as providing food for visitors, joining tourism event planning activities and receiving guests, and maintaining environmental cleanliness of the tourist resort area. Their involvement resulted in positive benefits as they were able to develop economic activities, strengthen solidarity, and improve their roles in the development (Mathew & Sreejesh, 2017; Nara & Irawan, 2020; Figueroa-Domecq et al., 2020; Nikjoo et al., 2021). This finding also accentuates the idea that the women's participation needs to be developed so that ecotourism can have an impact on all levels of society and patriarchal dominance of men can be reduced or eliminated. Women are expected to play an active participation in the tourism management in accordance with their duties and tasks.

Women play a crucial role in the development of tourism, but it depends on their awareness as the main driving factor both individually and as a group to be actively involved in tourism management. Research findings show that women in Glugut ecotourism participated because they were aware of the urgency of the park's existence to improve the quality of the community life. Their awareness grew as a result of positive efforts from park managers who viewed them as individuals with the capability of bringing success in tourism management who can satisfy visitors. Thus, the development of awareness is the key for the awareness to grow (Saarinen, 2010; Panta & Thapa, 2018). According to Freire (1985) awareness of the development target group occurs if they understand in advance what is happening to themselves and their environment, such as the problems, potentials, and natural resources that they have. A good understanding of this world will motivate them to become individuals who are willing to change and turn less favorable conditions into more favorable conditions. The development of women's awareness should ideally be carried out starting from the beginning of the ecosystem management to the use of ecotourism services so that it is possible for women to behave openly, committed, and motivated and finally have a sense of the belonging toward the ecotourism they manage.

The process of empowering women in tourism management should be achieved so that they act as active actors in the success of existing tourism programs in order to improve their quality of life (Elshaer et al., 2021; Imbaya et al., 2019). They must understand that the impact of tourism needs to be felt on all levels of society, not only on individuals who have direct access to tourism management, and they must also have the belief that tourism must be sustainable both in its process and results (Weaver & Lawton, 2016; Junaid et al., 2021). Their empowerment must be invoked using an interaction process designed in a way so that they are willing to communicate, be open, and have a dialogue with the developer. This can be put into realization in the form of implementing educational activities such as intense socialization, coordination, and joint discussions, and providing women with training and education in relation to the implementation of their functions in tourism activities. In addition, the development of women's awareness must be accomplished by supporting them through providing facilities, forming groups, strengthening the role of women's organizations, organizing their roles and functions in tourism management, and providing opportunities to manage homestays, culinary stalls, etc.

Research Implication

The findings indicate that achieving the goal of community-based tourism development should be managed in a planned manner in terms of management, substance, and technical empowerment. In terms of management, awareness and participation of target groups, i.e., women, must be used as the basis for developing the community.

Their involvement illustrates the belief that parties can empower themselves by using their potential to overcome the problems they face (Moscardo, 2008; Phillips & Roberts, 2013; Vo, 2020). So, to advance the target group, tourism development is managed by inviting them to discuss the real problem or conditions to be solved. On the aspect of the implementation of tourism development, the target group was given confidence to carry out empowerment activities, with the provision of adequate support such as providing financial assistance, creating efforts, and increasing tourism management capabilities. The implementation of tourism development should be carried out collectively by all parties involved. Evaluation aspect must be organized by doing an objective assessment based on a group perspective. Evaluation is done with the understanding and belief that the target group is the entity who actively builds knowledge or interprets their experience. They should be directed to express their valuable experiences independently and reflectively after they participated in tourism development activities. Developers can assist them by conducting mutual evaluations such as evaluation and impact evaluations.

Viewed from learning aspect, in developing their ability of tourism management, developers can take educational actions aimed at encouraging awareness, knowledge, and skills related to the activity of tourism management, for example excellent service to visitors, formulation of tourist services, and effective communication. These actions are organized by involving the target group participative and placing them as individuals being motivated, and having hope, experience, and goal. They must be asked to understand their priority educational needs by doing dialogue directly or by having observation of their behaviors. By using the methods, it is hoped that the objective of improving their ability in terms of the tourism management will be obtained, allowing the development of their capacity to carry out in a planned manner and avoid mere desires. A humanist, dialogical, and familiar approach must be built by the developer in interacting to develop the target group.

To gain the continuity of the tourism effect, there is a need to manage collective action that grows learning motivation, awareness, and active learning of the target group. It means that women in the tourism area can be joined together in community of practice which is a place for sharing knowledge and skills among its members related to improving the quality of their job or task and also strengthening their social bonds (Wenger-Trayner et al., 2015; Development & Mangiofico, 2014). This research found that the community of practice seemed to exist in the form of a routine meeting of Dasawisma that was able to encourage the spirit and caring of the members to achieve common prosperity. The existence of community of practice provides benefits for business development such as increasing profits, increasing the creativity of actors, increasing the skills of tourism actors, and developing community participation (Tohani & Sujarwo, 2013; Dionnet et al., 2013; Britt, 2021).

Practically, the success of tourism development by women needs to be supported with the participation of actors in the tourism environment. For example, the local leaders can contribute both by providing moral and material support for the tourism activities managed by women. It can be formed by producing tourism development policies, providing permits in managing tourism services, providing subsidies for the development of women's entrepreneurship, supplying assistance with related facilities for tourism development, promoting tourism services to potential parties, or even personally giving motivation and strengthening for women in tourism management. Effective participation of local leaders is a valuable input in developing women's activities in managing tourism services. They, both formally and informally, make referrals, consultancy tools, and solutions if they experience an event that can disrupt the stability of tourism management. Also, they can act as legal provider and mediator for groups to obtain resources available in the surrounding environment.

In pertinence to research findings, future research needs to be directed at developing women's active roles in nature tourism management by performing research directed at improving the resource-based collective entrepreneurial capacity (Ohe, 2020; Su et al., 2020). This will provide assurance to the women's optimal involvement in the nature tourism management activities. The goal of nurturing the entrepreneurial capacity is to allow women to have the ability to perceive opportunities, the courage to take creative and profitable actions, and the potential to develop partnership networks with parties whose interests are for better tourism.

CONCLUSION AND SUGGESTION

Based on the results of research and discussions that have been stated, the researchers could conclude that awareness raising in the development of Ecotourism in Glugut Park was carried out by managers who collaborated with external parties through three stages of awareness, starting from socialization, building motivation and involving target groups in ecotourism development, and through education and training so that they could decide the actions they need to take in developing ecotourism. This, in turn, has increased awareness of equal rights between men and women to develop tourism, contributions in the form of funds, manpower, ideas, and skills as well as work contributions, opportunities to care for tourism and the environment, as well as benefits that were enjoyed by in terms of economy, socio-culture, and environment. However, there were obstacles in the form of low knowledge and insight of managers in the tourism sector and tourism management. Also, there was still a transition of management and problems with land leasing with landowners, which hampered the implementation of empowerment activities. Therefore, tourism development that involves genuine women's participation must be developed by using research approach or educational collective action that can empower them to be more effective and sustainable in implementing tourism activities.

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Exploring the relationship between infrastructural development and socioeconomic well-being in rural areas: Evidence from Bakassi, Cross River State, Nigeria

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ABSTRACT

The relationship between infrastructural development and the socioeconomic well-being raises interest in rural areas. It specifically examines the relationship between road construction, potable water supply, and the socioeconomic well-being of rural dwellers in the Bakassi Local Government Area of Cross River State, Nigeria. The study design is cross-sectional, using quantitative and qualitative data from 420 rural respondents, with a multi-stage sampling technique. The descriptive statistics such as percentages and frequency tables, and Chi square was used to test the significance of the relationship between variables. All the respondents agreed that there is a significant relationship between road construction (68.8%), potable water supply (41.0%) and the socioeconomic well-being of rural dwellers. The study concludes that there is a significant relationship between infrastructural development and the socioeconomic well-being of rural dwellers. Thus, since the construction of roads has become a viable approach to establishing other sectors of the economy, governments at all levels should be largely involved in the provision of good and durable roads and the rehabilitation of old ones, especially in linking villages, towns, and communities to strengthen economic activities.

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INTRODUCTION

For a society to have a better quality of life, the quantity of infrastructure it provides to its residents must be taken into consideration. A society is considered to be functioning, stable, and progressing if it provides essential services to the majority of its citizens in a way that allows them to use them with the fewest restrictions. Both in developed and developing countries, it is evident that proper planning, implementation, and maintenance of development infrastructures contribute significantly to an increased level of productivity, economic growth, and social well-being of beneficiaries (Mohapatra & Chandrasekhar, 2007; Mujumule, 2016; Usman et al., 2019). A government that prioritises infrastructure raises production facilities' level, reduces production costs, as well as creates job opportunities (Mujumule, 2016; Ovharhe et al., 2020; Omang et al., 2022). On the other hand, the absence of infrastructure is a major impediment to sustainable development, thereby aggravating the already worrisome poverty level (Ofem et al., 2021; Ongbali et al., 2021; Rao & Srinivasu, 2013; Sahoo et al., 2010). Basic

infrastructural facilities such as access roads, clean water supply, health and educational facilities, as well as communication, are the standards for measuring the well-being of people in modern society, especially those in rural areas (Abdullahi et al., 2016; Ukwayi & Okpa, 2017, Ebewore, 2021; Yusoff et al., 2011).

Satish (2007) observed that the provision of rural infrastructure is crucial for agriculture, agro-industries, and the overall economic development of rural areas. He, however, noted that infrastructure projects in rural areas require huge investments, long gestation periods, a high incremental capital-output ratio, high risk, and a low rate of return on investment, compared to output ratios in urban areas. Adequate infrastructure raises productivity and lowers production costs, but it has to expand fast enough to accommodate growth. While the precise linkages between infrastructure and development are yet to be firmly established, it is estimated that infrastructure capacity grows step by step with economic output (Daud et al., 2018; Ebingha et al., 2019; Okpa et al., 2020; Satish, 2007). Provision of basic public utilities and other social amenities has far-reaching positive implications for both rural and urban areas. While it fosters stability and serves as an impetus for socioeconomic growth and development in the rural area, it also contributes to preventing population density in the urban area as a result of reduced rural-urban drift, thereby reducing insecurity, unemployment, squatter settlements, and other attributes of high urban population density vis-à-vis inadequate provision of social services. This study examines the relationship between infrastructural development and the well-being of rural dwellers in the Bakassi Local Government Area (LGA) of Cross River State, Nigeria. Specifically, the study examines the relationship between access road network, water supply, and the well-being of Bakassi people.

The study adopts the basic resources theory. The theory places emphasis on the role of basic natural or environmental resources in any locality or region, and it was propounded by Essang (1975). The theory holds that the economic development of any particular area depends largely on the presence, quality, and magnitude of basic natural resources within it, and that this increases income generation for the people, employment, provision of basic amenities, and overall improvement of the welfare of the people. Uche & Uche (2014) pointed out that the availability of natural or environmental resources plays an important role in the overall development of any locality, mostly at earlier stages of the process of economic and social development. In such situations, areas with more basic natural resources tend to have higher incomes and grow faster in the provision and delivery of formal social welfare services than areas with meagre or fewer resources (as this development helps to improve the quality of the lives of the people). This explains the seeming disparity of development across the country. The theory attributes the growth and development of major cities in various geo-political zones in Nigeria to the availability and utilisation of natural resources such as coal in the East, cocoa in the West, groundnut in the North and also palm oil in the South.

Generally, the basic resource theory tends to postulate that the resources of the people of an area or locality should be used to fast track the overall development and welfare of the people. Therefore, by application to this study, the basic resource theory shows that with the availability of roads and electricity in the suburbs area, the provision and delivery of formal social welfare services should not be lacking in any way for residents, but the reality on the ground leaves much to be desired from the welfare service providers. The basic resource theory has been used in studies in rural and community development. However, the theory has been criticised on the basis that the mere availability of natural or environmental resources is not enough to accelerate development. This is so because there are areas where the abundance of natural resources has not generated development, like in the Niger Delta region of Nigeria, while in other areas like Lagos, limited natural or environmental resources have led to rapid development through other resources. That is why Okoye (1992) argued that what really counts is the availability of a technically competent labour force and a leadership strongly dedicated to economic development and the overall well-being of the people. The theory also does not consider the possibility and operation of diminishing returns, which sets in when resources are exploited in an environment where population growth is rapid or static.

RESEARCH METHOD

This study adopted the multi-stage sampling technique, which consists of probability and non-probability sampling techniques. This study applied the qualitative as well as quantitative methods of data

analysis. The Statistical Package for Social Science (SPSS) was used to code and analyse the responses from the questionnaires distributed and retrieved. Frequency tables, simple percentages, and regression analysis were used to present the outcomes. The chi-square ($\chi 2$) test was used to test the significance of the relationship in the stated hypotheses. The qualitative data collected was transcribed, reviewed, organized, coded, and analysed into common themes. Careful interpretation of the responses obtained was ensured, in order to use the points generated to relate to the themes developed. Verbatim quotes from the transcription were used to support the data.

This is mixed research which follows a cross-sectional research design to explain the relationship between infrastructural development and the well-being of rural dwellers in Bakassi Local Government Area, Cross River State, Nigeria. The major instrument chosen for the purpose of collecting data in this study was the questionnaire schedule. A uniform set of questionnaires was administered to all the respondents. The other complementary instrument used was the in-depth interviews guide so as to collect information from prominent individuals in the communities. The interviewees freely express their views on the subject of the study. Bakassi LGA has its administrative headquarters in Ikang and consists of other towns such as Abana, Akpankanya, Akwa, Amoto, Ambai Ekpa, Archibong, Atai, Ema, Efut Iwang, Ekpot Abia, and Odiong. The Bakassi LGA is mainly made up of the Oron people and lies between the Cross River estuary. The LGA was created on December 12, 1996, from Akpabuyo LGA and is bounded in the East by the Republic of Cameroon; in the South by Equatorial Guinea and the Bight of Bonny; in the West by the Cross River Estuary; and in the North by Akpabuyo Local Government Area. The LGA is one of the eight Local Government Areas in the State and among the seven hundred and seventy-four in Nigeria. Bakassi occupies an area of approximately 657km2 (257 sq meters), with latitudes of 4°43′ and 4°55′ North of the equator and 8°26′ E and 8°38' East.

RESULT AND DISCUSSION

Characteristics of Respondent

The results presented in Table 1 showed that 234 (55.7%) respondents were males, while 186 (44.3%) were females. With regards to age, 131 (31.2%) were aged between 28-37 years, 120 (28.6%) were aged between 38-47 years and 75 (17.8%) were aged between 48-57 years. In terms of marital status, 245 (58.3%) were single and 151 (36.0%) were married.

Table 1. Socio-Demographic Characteristics of the Respondents

Variables	Frequency	Percentage %
Sex		
Male	234	55.7
Female	186	44.3
Age (in years)		
18-27	50	11.9
28-37	131	31.2
38-47	120	28.6
48-57	75	17.8
58+	44	10.5
Marital status		
Married	151	36.0
Single	245	58.3
Divorced	0	0.0
Widow/widower	8	1.9
Co-habiting	16	3.8
Religion		
Christianity	396	94.3
Islam	2	0.5
Traditional religion	22	5.2
Educational status		
No formal education	86	20.5
Primary	120	28.6
Secondary	166	39.5
Tertiary	48	11.4
Occupational status		
Farmer	101	24.0
Trader/business	148	35.2
Civil servant	54	12.8
Unemployed	78	18.6
Artisan	17	4.0
Student	20	4.8
Clergy	2	0.5
Monthly income		
<N20,000	201	47.8
N20,000-N50,000	152	36.2
N51,000 and above	67	16.0

With regards to religion, 396 (94.3%) respondents were Christians, 2 (0.5%) were Muslims, and 22 (5.2%) were traditional religions followers. For educational status, 120 (28.6%) respondents had primary education. 166 (39.5%) had secondary education and 48 (11.4%) had tertiary education. In terms of occupational status, 101 (24.0%) were farmers, 148 (35.2%) were traders/businessmen or women, 54 (12.8%) were civil servants, and 78 (18.6%) were unemployed. In terms of monthly earnings, 201 (47.8%) earned less than N20,000, 152 (36.2%) earned between N20,000 and N50,000, and 67 (16.0%) earned N51,000 or more.

Road Construction

The results in Table 2 showed that most respondents 300 (71.4%) acknowledged that there is an existing feeder road in their communities, while 120 (28.6%) indicated that such provision does not exist in their communities. 110 (36.7%) respondents said the provision had been completed, 122 (40.7%) said it had been abandoned, and 68 (27.6%) said the road construction is still ongoing.

Table 2. Road Construction and Socioeconomic Well-Being

Variables	Frequency	Percentage %
Existence of feeder road construction provision in communities		
Exist	300	71.4
Do not exist	120	28.6
Total	420	100.0
Nature of the feeder road construction provision in communities		
Completed	110	36.7
Abandoned	122	40.7
On-going	68	22.6
Total	300	100.0
Type of organization or partners involved in executing feeder provision		
Government	246	82.0
Benefitting community	14	4.7
Non-governmental organization	0	0.0
Do not know	40	13.3
Total	300	100.0
Provision of feeder road construction provision has improved the socioeconomic well-being of the people		
Has improved	288	68.6
Has not improved	132	31.4
Total	420	100.0

With regards to the type of implementing organisation or partners involved in executing road construction, 240 (82.0%) indicated that most road construction in their communities was executed by the government, while 14 (4.7%) respondents indicated road construction was initiated by the benefitting communities. Out of 420 respondents, 288 (68.8%) admitted that provision of feeder road construction has improved their socioeconomic well-being, while 132 (31.4%) indicated otherwise.

As presented in Table 3, the impact of road construction on socioeconomic well-being as indicated by 288 respondents mostly included transportation of people and goods (288 respondents or 100%); increased employment opportunities in the transport sector (255 respondents or 88.6%); increased access to health care facilities (244 respondents or 84.7%); improved access to educational institutions (213 respondents or 74.0%); increased household income (200 respondents or 69.4%); and link to neighbouring villages or communities (188 respondents or 65.3%).

Table 3. Feeder Road Construction on Socioeconomic Well-Being

Variables	Yes	No
Enhance the transportation of people and goods	288(100)	0(0.0)
Linking to neigbouring villages or community	188(65.3)	100(34.7)
Improved access to educational institutions	213(74.0)	75(26.0)
Employment of local workforce as labourers during road construction	102(35.4)	186(64.6)
Increased employment opportunities in transport sector	255(88.6)	33(11.4)
Increase household income	200(69.4)	88(30.6)
Increased access to health care facilities	244(84.7)	44(15.3)

The number in brackets denotes the percentage

All respondents affirmed that the implementation of road construction had a significant impact on community members in terms of transportation of people and farm products from the farm to the market for sale, providing employment for young men in the transport sector, and providing easy access to other places such as markets, schools, churches, and farmlands. Some respondents also highlighted that without the construction of roads, other sectors of the economy would not be developed, and they also acknowledged the deplorable state of existing roads.

The opinion of a 31years old female civil servant in Abakpa community in ward 7 highlighted that,

> *"At least when roads are provided, it helps us attend to our day-to-day activities on time, like going to work, the market, dropping children off at school and other things like that, but the challenge right now is that some of our roads are bad and need repairs because they can cause accidents, especially among motorcycle riders, and the government is not doing anything about it."*

A 35 years old male from Esighi community opined that,

> *"All these government roads have really helped us farmers. Before now we used to carry farm products on our heads and trek long distance to*

our houses and sometimes if I want to sell them, I go straight to the market if that day is our market day. So, you can see that each time we harvest, we can come out to the road and see motorcycle that would carry us straight to the market. My son who has a motorcycle uses it to make money which he uses to feed his family and if road no dey other provision like school, houses, church will not be there. So, road is very important to us here".

While some respondents agreed to the fact that the construction of roads had affected them positively by linking previously unconnected villages and strengthening their economic ties to boost growth and development in their communities, other respondents felt that they lack community connectivity due to lack of road provisions. As reported by a respondent, most roads linking villages/communities were untarred but motorable. The negative aspects of road construction highlighted by the respondents were that it caused several motorcycle accidents due to the deplorable state of the road.

Potable Water Supply

The results in Table 4 showed that 186 (44.3%) respondents acknowledged that there were existing potable water supply facilities in their communities, while 234 (55.7%) respondents indicated that such provisions did not exist in their communities. With regards to the nature of the potable water supply in their communities, 105 (56.4%) respondents indicated that the provision was completed, 36 (19.4%) indicated that the provision was abandoned, and 145 (24.2%) respondents indicated that the provision was ongoing. With regards to the type of organisation or partners involved in executing potable water supply, 122 (65.6%) indicated that most potable water supply provisions were executed by the government and 60 (32.2%) respondents indicated that potable water supply infrastructure was implemented by non-governmental organizations. Out of 420 respondents, 172 (41.0%) admitted that implementation of potable water supply improved the socioeconomic well-being of the people, while 248 (59.0%) indicated otherwise.

As presented in Table 5, the impact of potable water supply on socioeconomic well-being as indicated by respondents mostly includes reducing number of hours and distance travelled to search for water (149 respondents or 86.6%); increased agricultural production (128 respondents or 74.4%); increased household income generation (116 respondents or 67.4%); improvement in maternal and child health outcomes (103 respondents or 59.9%); improved productivity of local businesses and self-employment (102 respondents or 59.3%); reducing incidence of diseases and spread (94 respondents or 54.7%); and improved personal and environmental hygiene practices (81 respondents or 47.1%).

Table 4. Potable Water Supply and Socioeconomic Well-Being

Variables	Frequency	Percentage %
Existence of potable water supply provision in communities		
Exist	186	44.3
Do not exist	234	55.7
Total	420	100
Nature of the potable water supply provision in communities		
Completed	105	56.4
Abandoned	36	19.4
On-going	145	24.2
Total	186	100
Type of organization or partners involved in executing potable water supply provision		
Government	122	65.6
Benefitting community	0	0.0
Non-governmental organization	60	32.2
Do not know	4	2.1
Total	186	100
Provision of potable water supply has improved the socioeconomic wellbeing of the people		
Has improved	172	41.0
Has not improved	248	59.0
Total	420	100

Table 5. Potable Water Supply and Socioeconomic Well-Being

Variables	Yes	No
Enhancing transportation of people and goods	288(100)	0 (0.0)
Increased agricultural production	128(74.4)	44(25.6)
Reducing number of hours and distance travelled to search for water	149(86.6)	23(13.4)
Improved personal and environmental hygiene practices	81(47.1)	91(52.9)
Improving productivity of local businesses and self-employment	102(59.3)	70(40.7)
Reducing incidence of diseases and spread	94(54.7)	78(45.3)
Increasing household income generation	116(67.4)	56(32.6)

The number in brackets denotes the percentage

During an the interview session, a 31 years old woman stated that,

"Access to safe and clean drinking water, which is available but inadequately, guarantees good

health. With more provision of boreholes by government and nongovernmental organisations, the well-being of rural people would be enhanced".

Meanwhile, a 28 years old female respondent submitted that

"The water we use here is not clear enough, so we use it mainly for washing and cooking. If we want to drink water, we use the one from the tap or go to the stream to fetch water early in the morning when it is a little bit cleaner and filtered before we drink it in my house".

Many respondents acknowledged that the availability and easy access to potable water supply in their communities reduced the incidence of water-related diseases, reduced the number of hours travelled in search of water especially during the dry season, and boosted local businesses that require water for its processing. Other respondents lamented the lack of access to potable water. This implies that the availability of potable water supply exerts a significant benefit on the benefitting communities.

Infrastructural Development

There is no strong link between the road construction and the socioeconomic well-being of rural dwellers. The independent variable in this hypothesis is road construction, while the dependent variable is socioeconomic well-being. The results presented in Table 6 show that since the chi-square p-value was less than 0.05, the null hypothesis was rejected. This implies that road construction significantly relates to the socioeconomic well-being of rural dwellers.

There is no strong link between the potable water supply and socioeconomic well-being of rural dwellers. The independent variable in this hypothesis is potable water supply, while the dependent variable is socioeconomic well-being. The results presented in Table 6 show that since the chi-square p-value was less than 0.05, the null hypothesis was rejected. This implies that potable water supply is significantly related to the socioeconomic well-being of rural area.

The result of the first hypothesis showed that there is a significant relationship between road construction and the socioeconomic well-being of rural dwellers in the study area. This was confirmed where, out of 420 respondents, 288 (68.6%) indicated that the provision of road construction has improved their socioeconomic well-being in terms of transportation of people and goods, increased employment opportunities in the transportation sector and other non-agriculture employment, increased access to health care facilities, increased household income, and improved access to educational institutions as depicted in Table 3. This finding corroborates the studies conducted by van de Walle & Mu (2007), van de Walle (2008), Asher et al. (2016), and Okpa and Ekong (2017) where construction of rural roads was reported to have improved the socioeconomic well-being of rural dwellers. From the findings in this study, it is evident that the provision of road construction is the backbone for overall human and capital development in any polity. This means that where there are no roads, development is limited in that area. The provision of roads alone has the potential to trigger development in other sectors of the economy, such as health, education, water supply, markets, electricity, industries, and artisanal activities. Without roads, none of the above sectors can grow on their own.

Table 6. Test of Relationship between Road Construction and Socioeconomic Well-Being

Variables	Yes	No	Total
Existence of road construction in communities			
χ^2 = 363.12, Sig = 0.000*			
Exist	288(96.0)	12(4.0)	300(100)
Do not exist	0(0.0)	120(100)	120(100)
Total	288(68.6)	132(31.4)	420(100)
Existence of potable water supply in communities			
χ^2 = 367.90, Sig = 0.000*			
Exist	172(92.5)	14(7.5)	186(100)
Do not exist	0(0.0)	234(100)	234(100)
Total	172(41.0)	248(59.0)	420(100)

* denote significant at 0.05

The provision of a good road network can propel the influx and efflux of people and investors as well as strengthen economic ties between communities and increase the income level of individuals and families. As observed by Lyngby (2008) and Omang et al. (2020), there was a gradual shift from agricultural to non-agricultural activities there with thecreation of employment opportunities in other sectors. This has been possible through the construction of roads. However, despite the enormous benefits of road construction, there were challenges confronting those who benefit from it. Most constructed rural roads were dilapidated and damaged, which was why they were often abandoned without any form of rehabilitation. Consequently, these bad roads often led to motorcycle accidents, injuries, and the deaths of victims. Hence, it is evident that the provision of a good road network is seen to be a springboard to the development of

other sectors, which is the central premise of the principle of unbalanced growth.

The result of the second hypothesis revealed that there is a significant relationship between potable water supply and the socioeconomic well-being of rural dwellers. This is shown by the fact that 172 (41%) of the 420 people who took part in the study said that having access to potable water had improved their social and economic well-being by reducing the number of hours or distances they had to travel to find water, increasing agricultural productivity, increasing household income, improving the health of mothers and children, increasing the productivity of local businesses, and giving them more chances to work for themselves. This is in line with study of Mudavanhu (2015), Uchenna (2012) and Okoi et al. (2022). They found that having access to water greatly improves the social and economic well-being of rural people by increasing school enrollment, reducing the number of diseases, and making farming more productive.

Water supply is obviously one of the essential basic amenities for human survival and development. Some remote areas in Nigeria, including Bakassi LGA, still suffer from a substantial lack of access to potable water supply. Sources of water supply in these areas include rainwater collection, streams, springs, and dog wells. Most of the time, water gotten from these sources is directly consumed without undergoing any form of treatment or filtration process. Consequently, this poses a substantial health risk to consumers and also threatens the health status of the vulnerable population, such as pregnant women and children. The lack of access to potable water supply can exacerbate the living conditions of rural dwellers, thereby perpetuating the cycle of poverty, increasing school absenteeism, decreasing school enrolment, reducing household income level, and increasing the incidence of water-related diseases (Mudavanhu, 2015; Ofem et al., 2021). The central premise of these findings is that there is no aspect of human endeavour and sector of the economy that does not require regular access to potable water supply for the success and survival of its activities. So, it's safe to say that putting in place a water supply is a key factor in how quickly a country grows and how much poverty it has.

Research Implication

The study has implications for improving infrastructural development in Bakassi LGA of Cross River State, Nigeria and for individuals who are direct beneficiaries of these infrastructural projects. Considering that poor quality infrastructure is among the greatest restraints on Nigeria's reaching its true potential, the country should upgrade its infrastructure—transportation, power, communication, healthcare, education, water supply, and sanitation. Improved infrastructure has been identified as a factor that will have a catalytic effect on productivity and economic growth. Furthermore, infrastructure development must focus not only on the installation of required infrastructure but also on creating an environment that supports proper planning, maintenance, and sustainability of infrastructure.

Governments at all levels should increase their budget allocation to road construction and water supply because this will increase the funds directed to construct, fix, and rehabilitate dilapidated roads and improve the supply of potable water. The implication is that an increase in government spending on road and water projects will enhance the well-being of rural dwellers in Nigeria. Also, there should be full implementation of public-private partnership (PPP) in road projects as recommended in the national draft on transport policy for the Federal Republic of Nigeria (2010). International donor agencies must provide both financial and technical support in terms of embracing viable policies that promote technological advancement, manpower development, and pollution control policies as it concerns the water sector. The local institutions should promote public awareness activities through traditional, and mass media should encourage people to imbibe health culture in the use of the available water resources.

CONCLUSION AND SUGGESTION

From the findings in this study, it was observed that road construction and potable water supply are statistically related to the socioeconomic well-being of rural dwellers in the study area. Although the respondents were unanimous in agreeing that access to a road network can enhance the well-being of rural dwellers, only 300 (71.4%) acknowledged that there is an existing feeder road in their communities, while 120 (28.6%) indicated that such provision does not exist in their communities. However, 110 (36.7%) respondents said the provision had been completed, 122 (40.7%) said it had been abandoned, and 68 (27.5%) said the road construction was still ongoing.

Since road construction has become a viable approach to establishing other sectors of the economy, governments at all levels should be largely involved in the provision of good and durable road construction and rehabilitation of old ones, especially in linking villages, towns, and communities to strengthen economic activities.

Similarly, l86 (44.3%) respondents acknowledged that there are existing potable water supply facilities in their communities, while 234 (55.7%) respondents indicated that such provisions do not exist in their communities. The findings of the study also showed that 105 (56.4%) respondents indicated that the provision was completed, 36 (19.4%) indicated that the provision was abandoned, and 145 (24.2%) respondents indicated that the provision was ongoing. A greater percent of the respondents (248, (59.0%) revealed that access to water supply is a major problem in the study area that has negatively affected the socioeconomic well-being of the people who do not have access to potable water. Since the construction of roads has become a viable approach to establishing other sectors of the economy, governments at all levels should be largely involved in the provision of good and durable roads and the rehabilitation of old ones, especially in linking villages, towns, and communities to strengthen economic activities.

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Existence of the Environmental Kuznets Curve and its relevance to SDGs policy: A study in Java region, Indonesia

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ABSTRACT

The debate on economic growth as a trigger or solution to environmental damage is the driving force behind this research. This study examines whether there is an advanced stage of the Environmental Kuznets Curve (EKC) that forms a curve resembling the letter N in Java province, Indonesia. This study used a panel data regression model with the main variableof CO2 emissions and GDP per capita. This research demonstrated that, in the short term, per capita income growth caused damage to the environment. However, this relationship was different in the long run and eventually formed an N-shaped curve. The existence of an N-shaped EKC was detected, but not significant. The relationship between population growth rates, income inequality and the Sustainable Development Goals (SDGs) with CO2 emissions as well as EKC turning points were also investigated in this study. The study results included N-shaped EKC detected in Java with the first turning point of Rp 154,297,936 and the second turning point of Rp 1,136,629,791. Population growth rate was proven not to affect CO2 emissions, in contrast to income inequality and the SDGs agreement which affected emissions in Java. Raising public awareness, paying attention to energy use, initiating technological innovations, and enforcing pro-environment policies are recommended to be implemented in Java and across Indonesia.

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INTRODUCTION

Changes in the environment and world climate have the potential to cause catastrophic consequences for human survival. Climate change is the most severe environmental threat facing humans today (Wang et al., 2021) as well as a complex social challenge (Kalele et al., 2021). In the last five decades, the global climate system has undergone significant changes with high frequency and impact of extreme weather (Kalele et al., 2021; Li et al., 2021).

Climate change is driven by a large number of factors, but greenhouse gas (GHG) emissions are one of the key contributing factors (Yue & Gao, 2018). To a certain extent, GHG emissions are needed by the earth, but will cause climate change if they are too excessive (Özokcu & Özdemir, 2017). CO2 emissions are one of the components of GHG often used as research references and environmental indicators since, although not the largest contributor to GHGs, many CO2 emissions originate from human activities (IPCC, 2014; Özokcu & Özdemir, 2017; Septiana, 2013; Suharto et al., 2021).

Economic growth generated by exploiting nature is frequently accused of causing environmental

degradation. Economic interests often collide with environmental preservation as indicated by numerous studies, one of which is the Environmental Kuznets Curve (EKC) hypothesis. The hypothesis rejects the opinion that economic factors bring damage to the environment (Özokcu & Özdemir, 2017). The curve of the hypothesis demonstrates that environmental issues can be solved in the long run with economic growth, despite environmental degradation at the beginning of economic development (Sugiawan & Managi, 2016). The EKC hypothesis illustrates that there is an inverse U-shaped relationship between environmental degradation and economic growth.

The curve was named the Environmental Kuznets Curve due to its similarity to the Kuznets Curve which explains the inverse U relationship between income inequality and economic growth initiated by Simon Kuznets (Özcan & Öztürk, 2019; Özokcu & Özdemir, 2017). The inverted U shape in the EKC hypothesis occurs since environmental degradation will increase at the beginning of development to a certain point, commonly called a turning point. With increasing income as an indicator of economic growth, a turning point will be reached and the environmental degradation begins to decrease along with increasing income (Ahmad et al., 2017; Alam et al., 2016; Özokcu & Özdemir, 2017; Sugiawan & Managi, 2016; Tatoğlu & Polat, 2021; Uchiyama, 2016).

In EKC, the development phase isdivided into three stages, namely the pre-industrial, the industrial and the post-industrial phase (Özcan & Öztürk, 2019). In the early stages of development or pre-industrial, environmental degradation increases because people are less concerned about environmental impacts. However, upon entering the industrial phase, people are more concerned with facilities that produce less pollution to the environment (Özcan & Öztürk, 2019). Subsequently, in the post-industrial stage, economic growth is followed by a decrease in environmental degradation. According to Dinda (2004), higher economic growth and income generally drive higher demand for environmental quality.

The aforementioned stages of development are in line with a study by Grossman et al. (Özcan & Öztürk, 2019) which stated that environmental quality is influenced by economic activities in three ways, namely scale effects, composition effects and technique effects. In the effect of scale, the growth of economies of scale results in a high increase in environmental pollution since many resource inputs are exploited in production instead of environmental management (Tatoğlu & Polat, 2021). Subsequently, the composition effect describes the inverse U relationship. Slong terectoral structural changes occur at this stage, where low-income countries change from agriculture-oriented to industry-oriented which drive environmental pollution, while high-income countries shift from industry-oriented to service-oriented sectors with low pollution intensity (Özcan & Öztürk, 2019). In the technical effect, technological modernization occurs by changing technology to be better and cleaner which can improve environmental quality (Dinda, 2004).

This study examines whether there are advanced stages of inverted U-shaped EKC, referring to the research of Balsalobre-Lorente et al. (2018), Dinda (2004), Özokcu & Özdemir (2017), as well as Uchiyama (2016), using the analysis of cubic EKC specifications on economic growth and potentially depicting the N-shaped EKC curve. This N-shaped relationship refers to a study by Dinda (2004) which states that an inverted U-shaped EKC is not permanent. The decrease in environmental degradation is temporary and generally increase to form an N-shaped curve. The N-shaped relationship occurs because the technical effects of improving the environment through technology has become increasingly ineffective. Álvarez-Herránz et al. (2017) and Sinha et al. (2019) refer to this phase as "technical obsolescence" or obsolescence of the technical effects that encourages the increase in CO2 emissions to reoccur. Research on the validation of N-shaped EKC was conducted by Uchiyama (2016) in 171 countries during the period of 1960-2010, validating the existence of N-shaped EKC. Similar results were obtained by Balsalobre-Lorente et al. (2018) in five European Union countries in 1985-2016 as well as by Özokcu & Özdemir (2017) in 26 OECD countries in 1980-2010.

Recently, EKC has been widely studied with environmental indicators, economic indicators, explanatory variables, countries, time periods and different econometric techniques. Ersin (2016) examined the relationship between the presence of EKC in 13 developed countries in 1870-2011 and validated the existence of EKC. Similar results with the panel data model were also obtained by Le & and Quah, (2018), Nikensari et al. (2019), and as well as Tatoğlu & Polat (2021) with the same environmental indicator, i.e. CO2 emissions. In addition to the

hypothesis of an inverted U-shaped EKC, the study results of Uchiyama (2016) as well as Özokcu & Özdemir (2017) using a data panel model validated the existence of an N-shaped EKC by adding the cubic GDP variable to the calculation. However, different results were obtained by P. Y. Chen et al. (2016) for 188 countries in 1993-2010, Apergis & Ozturk (2015) in 14 Asian countries, Noor & Saputra (2020), and Vo et al. (2021) in 26 countries that do not demonstrate the existence of EKC. In a narrower scope, that is Indonesia, there are several studies indicating contradictory results. Alam et al. (2016) used the ARDL method to validate the existence of EKC in Indonesia. However, different results by Ridzuan et al. (2020) using the ARDL method and Noor & Saputra (2020) using 2SLS Regression failed to validate the existence of EKC in Indonesia. These results indicate that the existence of EKC is different in each scope of research and is still biased, especially with the differences in research methods, countries studied, time span, and environmental and economic indicators. The turning point of EKC also varies in each study and the majority is still in high numbers.

In addition to economic growth, there are two other variables examined in relation to CO2 emissions, namely population level and income inequality. Population level is added considering that larger human population encourages high energy demand, resulting in the potential for increased pollution (Alam et al., 2016; Apergis & Ozturk, 2015; Nikensari et al., 2019; Tatoğlu & Polat, 2021). Moreover, Indonesia is the fourth most populous country in the world (World Bank, 2021a) which still heavily depends on unclean energy resources. Also, Indonesia's fast-paced economy has resulted in the change in social and economic structures, including the increasing income inequality pattern. Low income inequality has been studied to help control emissions (P. Y. Chen et al., 2016; Jorgenson et al., 2017; Zhang & Zhao, 2014).

This study also relates the phenomenon of environmental degradation and economic growth, especially in EKC, with sustainable development. The EKC concept presents a very close relationship with sustainable development. According to Uchiyama (2016), the concept of EKC is very closely related and is interesting in the discussion of sustainable development since it is used to understand the effect of economic growth on the environment. In the concept of sustainability, economic development must be carried out while paying attention to conservation efforts to ensure that its benefits are preserved for future generations (Gupta & Dharwal, 2022; Sugiawan & Managi, 2016). The three main aspects in sustainable development include economic growth, environmental preservation, and social progress (Gupta & Dharwal, 2022; Suharto et al., 2021). Sustainability is promoted not only in a small scope, such as the state, but also worldwide by the United Nations (UN). The UN has established an agenda of Sustainable Development Goals (SDGs) which include 17 main goals with 169 targets (UN, 2016). In general, the SDGs aim to improve the quality of human life, increase prosperity and protect the planet (Scherer et al., 2018). The SDGs are expected to be a guide for countries in decision-making and development policies.

Environmental degradation is an urgent problem for sustainable economic development, especially for developing countries relying on natural resources to sustain their economy. Indonesia is one of the ten largest emitting countries in the world (Friedrich et al., 2020) and Java accounted for 53% of Indonesia's emissions in 2019. This occurs because many industries are oriented in Java, causing numerous environmental effects. One of the examples is the existence of thermal power stations as a source of electricity. Electricity consumption in Java has tripled compared to regions outside Java in 2020 (National Electricity Company, 2021). Previous literatures did not indicate evidence of the validity of EKC, especially in Indonesia and Java, and no available studies identified the inflection points for EKC in Indonesian and Javanese subjects.

The study mainly aims to examine the validity of the EKC in Java before and after the approval of the SDGs. It also aims to link the EKC concept with the SDGs and to investigate whether there is a real movement from Indonesia that leads to a sustainable development path. Inflection points are also investigated in this study. This research offers to contribute to the study of the impact of economic and social factors on the environmental degradation in Java. In addition, this research potentially contributes to the sustainable economic development and policy making in Java. This study examines the amount of income that describes the turning point and adds the number of population and income inequality in the calculation to determine the effect of these two variables on Indonesia's CO2 emissions.

RESEARCH METHOD

This study used panel data combining cross-section and time series data in Java region. It employed panel data in 2011-2019 in the provinces of DKI Jakarta, West Java, Central Java, East Java, Yogyakarta, and Banten. The time span of 2011-2019 describes the period of before and after thesetup of the Sustainable Development Goals (SDGs).

EKC hypothesis testing is operated by economic and environmental degradation indicators, such as GDP per capita and CO2 emissions. GDP per capita data used is based on 2010 constant prices divided by the total population of each province taken from the Indonesian Central Statistics Agency. Meanwhile, the CO2 emissions is the amount of carbon emissions in each province obtained from the Ministry of Environment and Forestry.

This study used such analysis method as the Autoregressive Distributed Lag (ARDL) based on time series data, as suggested by Alam et al. (2016), Ali et al. (2017), Kusumawardani & Dewi (2020), Ridzuan et al. (2020), Sugiawan & Managi (2016), and Vo et al. (2021); and panel data regression models (Ersin, 2016; Le & Quah, 2018; Nikensari et al., 2019; Tatoğlu & Polat, 2021).

The majority of previous studies used quadratic equations to determine the inverted U pattern of EKC, but this study used cubic equations to test whether there is an advanced stage of the inverted U pattern of EKC, referring to Dinda (2004), Özokcu & Özdemir (2017), and Uchiyama (2016). According to Özokcu & Özdemir (2017), the cubic equation is used to examine whether there is an inverse trend after the reduction in environmental degradation caused by increased income. The equation can be written as follows:

$$CO2_{it} = a + \beta_1 GDP_{it} + \beta_2 GDP2_{it} + \beta_3 GDP3_{it} + \beta_4 POP_{it} + \beta_5 INEQ_{it} + \beta_6 SDGS_{it} + e_{it} \quad (1)$$

The variables in this study included CO2 emissions (CO2) as the dependent variable, while GDP per capita (GDP), GDP per capita squared (GDP2), and GDP per capita cubic (GDP3) were the independent variables (Table 1). The quadratic and cubic equations on the GDP per capita variable were used to observe the relationship between environmental degradation and economic growth in the form of a curve. According to Özokcu & Özdemir (2017), the cubic equation is used to examine whether there is an inverse trend after the reduction in environmental degradation caused by increased income. Population level (POP), income inequality (INEQ), and SDGs were also added as explanatory variables. The addition of the population growth rate variable referred to the studies of Alam et al. (2016), Apergis & Ozturk (2015), Nikensari et al. (2019), and Tatoğlu & Polat (2021), while the addition of income inequality variable referred to the studies of Chen et al. (2020), Grunewald et al. (2017), Hao et al. (2016), Jorgenson et al. (2017), Kusumawardani & Dewi (2020) as well as Zhang & Zhao (2014). Equation (1) also used the dummy variable SDGs (SDGs) to determine the effect of the SDGs agreement on CO2 emissions (0=before SDGs, 1=after SDGs).

Prior to the Equation 1 calculation, Chow Test, Hausman Test, and Lagrange Multiplier Test were carried out to determine the most suitable model among Common Effect Model (CEM), Fixed Effect Model (FEM), or Random Effect Model (REM). Subsequently, classical assumption test was carried out using the multicollinearity test and the heteroscedasticity test. After Equation 1 calculation was carried out, result interpretation was performed through t-test, f-test and coefficient of determination or R-square test. The t-test was done to determine the coefficient of the independent variable on the independent variable partially, and the f-test was conducted to determine whether all the independent variables were able to explain the dependent variable simultaneously.

Table 1. Descriptive Statistics of Variable

Variable	Symbol	Observation	Mean	Min.	Max.	Std. Dev.
CO2 Emission (x1000 tons CO2)	CO2	54	68,806.99	4,632.40	392,393.40	64,654.62
GDP per capita (million rupiahs, Rp)	GDP	54	47.10	19.39	173.92	44.75
Population growth rate (%)	POP	54	1.17	0.49	2.39	0.54
Inequality income (Gini index)	INEQ	54	0.40	0.36	0.44	0.02
SDGs (dummy)	SDGs	54	0.44	0.00	1.00	0.50

The calculation of the turning point or EKC peak point was then conducted to determine at which point per capita income CO2 emissions began to decline. Research on this cusp has yielded mixed results. According to Bhattacharya (2019), there is no agreement in the literature regarding the level of income where the turning point occurs. Although there is no definite turning point, Uchiyama (2016) stated that the EKC turning point was at US$15,698 to US$16,595 (constant 1990 prices) for a sample of OECD (Organization for Economic Co-operation and Development) countries, and between US$15,600 and US$21,186 for the non-OECD sample. Since this study used a cubic equation, two inflection points were generated. The formula to determine two N-shaped EKC inflection points referred to Diao et al. (2009) as follows:

$$x_1 = \frac{-b_2 + \sqrt{{b_2}^2 - 3b_1b_3}}{3b3}$$

$$x_2 = \frac{-b_2 - \sqrt{{b_2}^2 - 3b_1b_3}}{3b3}.$$

$$CO2_{it} = a + \beta_1 GDP_{it} + \beta_2 POP_{it} + \beta_3 INEQ_{it} + \beta_4 GDP * DM_{it} + \beta_5 POP * DM_{it} + \beta_6 INEQ * DM_{it} + e_{it} \quad (2)$$

Another equation was also used in this study, namely Equation 2, which aimed to identify the different effects of independent variables (GDP per capita, population rate, and inequality) on CO2 emission variables before and after the SDGs establishment by adding a dummy variable (DM) to each independent variable. Equation 2 used an ex post facto method to observe changes in the influence of the independent variables, namely income per capita, population growth rate and income inequality after the SDGs agreement at the end of 2015.

RESULT AND DISCUSSION

Characteristics of Respondent

Provinces in the island of Java were used as the subjects of this research, i.e., DKI Jakarta, West Java, Central Java, East Java, Yogyakarta and Banten. Java was selected since it is the center of the economy, state administration and politics in Indonesia. The capital city of Indonesia is also located in Java. Economic mobility is significantly high in Java and many large industries are located in Java. The provinces in Java dominate the structure of the Indonesian economy with a percentage of 57.89% (Central Bureau of Statistics, 2022). The total population of Java Island is also extremely large when compared to regions outside Java with a percentage of approximately 56%, even though the area of Java is smaller than other islands in Indonesia.

The industrial economic activities and population distribution in Java have various impacts, one of which is CO2 emissions. Industrial pollution and high energy use drive high levels of CO2 emissions, especially in provinces with a large population. In 2019, Indonesia's total CO2 emissions amounted to 729,902.41 thousand tons of CO2, where Java was the highest contributor with a percentage of approximately 53% (MEF, 2022). In Java, East Java Province's emissions outperformed other provinces in the last three years as presented in Table 2.

Table 2. CO2 Emissions of Provinces in Java

Region	2017	2018	2019
	.....	x1000 tons CO2	.....
DKI Jakarta	28,285.58	32,689.45	38,578.96
West Java	72,893.13	69,956.31	123,688.11
Central Java	99,190.25	82,758.28	91,901.66
East Java	126,729.94	195,769.92	3922,393.37
Yogyakarta	12,378.06	4,632.01	5,285.50
Banten	100,330.18	18,256.78	78,054.81

Source: MEF (2022)

According to Sugiawan & Managi (2016) Indonesia remains dependent on fossil fuels. Oil, coal, and gas resources are the three largest energy resources in the country. Energy resources derived from fossils are the supporter of the electricity sector in Indonesia. Coal is the largest source of power generation with a percentage of 56.4% in 2018 (Secretariat General of National Energy Council, 2019). In Java, the use of coal fuel for the electricity sector is extremely high, three times higher than the use outside Java in 2020 (National Electricity Company, 2021). This is due to the high demand and consumption of electricity in Java, which affects the amount of electricity production and in turn has an impact on increasing CO2 emissions.

Variables Affecting CO2 Emission

There are three commonly used panel data regression models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM) or Random Effect

Model (REM). The Chow test and Hausman test indicated that FEM was the most suitable model in this study. The results indicated that the FEM model was better than the CEM as illustrated in the results of the Chow test with a probability (Prob.) of 0.0055 or Prob. <0.05, suggesting that H0 is rejected and H1 is accepted or that FEM is a better model. To determine whether the Fixed Effect Model (FEM) or the Random Effect Model (REM) was the better model, the Hausman test was performed. The result indicated a probability value of 0.0002 or Prob. <0.05, suggesting that H0 is rejected and H1 is accepted or FEM proves to be a better model than REM. Fixed Effect Model (FEM) is the most suitable estimation model since it espouses the research objectives and has the highest and significant Adj-R for all independent variables.

Classical assumption testing was also carried out and the results indicated that there was a heteroscedasticity problem in the study. The Breusch-Pagan/Cook-Weisberg test method was used to test for heteroscedasticity. The results demonstrated that indeed there was a heteroscedasticity problem in this study. The probability value of 0.0000 indicated the existence of the problem. To overcome the issue, the Generalized Least Squares (GLS) regression model can be used to prevent heteroscedasticity to obtain an unbiased, consistent and efficient estimate (Setyawan et al., 2019). The following is a table of data estimates using Generalized Least Squares with observations in the provinces in Java during the 2011-2019 period. The F-test in this study resulted in an F-statistical probability value of 0.0000 at a significance level of 5%. This suggests that the independent variables, namely GDP, population growth rate, income inequality and SDGs agreement, have an effect on the CO2 emission variable in Java.

Population growth rates, income inequality, as well as the SDGs were also examined in this study. It was discovered that population growth rate did not significantly have a positive relationship with CO2 emissions. Meanwhile, income inequality, as reflected in the Gini coefficient and the SDGs agreement, had a negative relationship with CO2 emissions at a significance level of 0.1.

Based on the results of the regression calculations, only the GDP variable was statistically significant at the 0.01 level. These results indicated that an increase in per capita income affects the intensity of CO2 emissions.

Table 3. Estimate Variables Affecting CO2 Emission

Variable	Coefficient	Standard Error	Sig. Level
GDP	15878.01	5335.057	0.003
GDP2	-58.43732	64.86891	0.368
GDP3	0.0301784	0.2286611	0.895
POP	2128.771	21146.49	0.920
INEQ	-851768.5	442637.2	0.054
SDGs	-42077.18	18705.72	0.024
Constant	-754729.6	290667.7	0.009

There was a significant positive relationship between per capita income and CO2 emissions. The increases per capita income is proven to improve environmental degradation. Economic growth that requires resources and produces waste remains a problem in developing countries such as Indonesia. In addition, there is no strict regulation and adequate green technology to reduce the economic impact on the environment. However, the positive relationship between per capita income and CO2 emissions is bound to change in the long run. The results of this study indicated the existence of an N-shaped EKC.

Meanwhile, the population level had an insignificant positive effect on CO2 emissions in Java. This is not in line with research conducted by Alam et al. (2016), Apergis & Ozturk (2015), Nikensari et al. (2019) and Tatoğlu & Polat (2021), which proved that there is a significant effect between population and CO2 emissions. Although no significant effect was observed, the policy on population growth must still be carried out seriously. This is because Indonesia's population continues to increase every year, making it the fourth most populous country in the world. The increasing population each year has the potential to cause high CO2 emissions in Indonesia since an increase in population generally leads to high energy demand which drives greater pollution, especially when Indonesia remains dependent on unclean or non-renewable energy sources. This is in line with a study by Hashmi & and Alam (2019) which stated that population is the main factor driving high CO2 emissions. Even the research shows that the impact of regulation and technology is not able to offset the impact of population in reducing CO2 emissions.

The income inequality variable in this study was described by the Gini coefficient and had a significant negative effect on CO2 emissions. This negative result is in line with the research of Hao et al. (2016) as well as Kusumawardani & Dewi (2020), suggesting that income distribution tends to increase CO2 emissions. Income distribution can be identified in two ways,

namely an increase in the income of the poor and a decrease in the income of the rich. According to Grunewald et al. (2017), efforts to reduce inequality through income redistribution generally increase CO2 emissions. Equity with an increase in the income of the poor will cause the community groups to consume more energy which results in increased energy consumption and increased CO2 emissions as a consequence (Kusumawardani & Dewi, 2020). Likewise, the income distribution of the rich towards lower income groups will change the consumption pattern of the rich from low-polluting goods to high-polluting goods since high-polluting goods tend to be cheaper than low-polluting goods.

The N-shaped EKC

Furthermore, from the coefficient values of GDP, GDP2 and GDP3, it is shown in Table 3 that there is an N-shaped EKC curve that refers to the studies of Dinda (2004) and Özokcu & Özdemir (2017), which is in accordance with the conditions β_1>0, β_2<0, and β_3>0. Therefore, with this calculation, it can be said that the N curves were detected, but were not significant (prob. GDP2, GDP3 > 0.05). This means that there is an advanced stage of the inverted U-shaped EKC curve. With this result, it can also be interpreted that there are two inflection points on the EKC.

The two turning points being examined in this study were the first and the second turning points. The calculation of these two income level points referred to the study of Diao et al. (2009). The first turning point describes the level of income at which environmental degradation begins to decrease. The first turning point obtained in this study was Rp 154,297,936. Subsequently, the second turning point that occurs was examined due to the "technical obsolescence" that cause an increase in CO2 emissions reoccur in Java. This study indicated that the second turning point in this study was Rp 1,136,629,791. This means that there will be a decrease in environmental degradation if Java's per capita income is at Rp 154,297,936. However, the reduction in environmental degradation is temporary and will result in technical obsolescence at the income level of Rp 1,136,629,791, at which level the environmental degradation increases again.Hence, an N-shaped curve can be drawn, or it can be said that an N-shaped EKC is detected in Java (Figure 1).

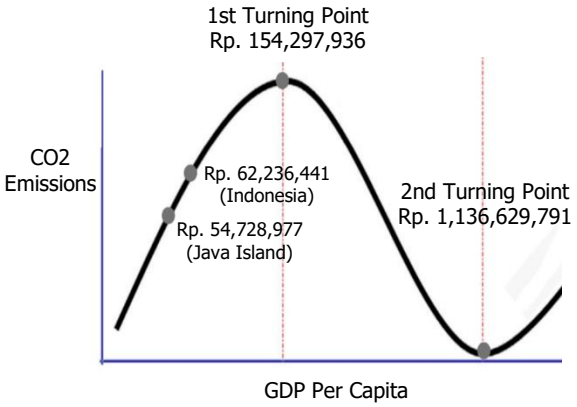

Figure 1. Illustration of the N-shaped EKC

The results of the analysis show an N-shaped pattern was present in the relationship between CO2 emissions and GDP in Java in 2011-2019. This study identified a temporary decrease in environmental degradation and reoccurrence of increase to form an N-shaped curve. This N-shaped curve suggests that there is an indication of insufficient environmental improvement (Özokcu & Özdemir, 2017). Álvarez-Herránz et al. (2017) and Sinha et al. (2019) referred to this condition as "technical obsolescence" or obsolescence of technical effects that cause an increase in CO2 emissions to reoccur at a certain income point. This can happen since the initially high public awareness of the environment begins to decline over time and the scale effect becomes more dominant (Lorente & Álvarez-Herranz, 2016). The scale effect is the initial condition of the EKC hypothesis where the growth of economies of scale results in a high increase in environmental pollution since many inputs are exploited in production instead of environmental management (Tatoğlu & Polat, 2021). The results of this N-shaped EKC study are similar to those obtained by Uchiyama (2016) in 171 countries during the 1960-2010 period, followed by the study of Balsalobre-Lorente et al. (2018) in five European Union countries during 1985-2016, as well as Özokcu & Özdemir (2017) in 26 OECD countries from 1980 to 2010. The results of this study illustrate that a policy that can delay technical obsolescence is needed in the long term.

Studies on N-shaped EKC also showed different results. The findings are different from the findings of the study by Uchiyama (2016), which indicated turning points of US$15,698 to US$16,595 (constant 1990 prices) for the sample of OECD countries. A study by

Balsalobre-Lorente et al. (2018) identified the first inflection point at a value of US$29,647.48 and the second inflection point of US$38,534.87. Bhattacharya (2019) argued that there is no agreed value or definite value at the turning point of the EKC study. Certain countries may also not be generalizable in EKC studies. Differences in environmental indicators, time spans, regional conditions and variables also lead to inconsistent turning points of the EKC. The findings also indicate that the turning point of Indonesia's EKC remains relatively far from being achieved considering that its GDP per capita currently stands at Rp 62,236,441 or equivalent to US$4,349.5 and the GDP per capita of the provinces in Java at Rp 54,728,977 or equivalent to US$3,824 (Central Bureau of Statistics, 2022) as illustrated in Figure 1. These results show that Java and Indonesia are far from reaching the first turning point, a phase where economic growth can improve the environment.

The stages of decreasing environmental degradation and the current value of income in Java have not reached Rp 154,297,936, the first inflection point. According to Nikensari et al. (2019), the estimated value of income which is predicted to be able to reduce CO2 emissions must be balanced with the ability of the country itself. Various aspects must be taken into serious consideration and given proper attention. Otherwise, CO2 emissions will not decrease even though the estimated revenue value has been reached.

CO2 Emissions and SDGs Policy

The effect of the SDGs agreement was also investigated in this study. Table 4 shows the results of the calculations in Equation 2 and indicates that each variable presented a different influence during the 2011-2019 period and after the establishment of SDGs. GDP per capita, which initially indicated a positive effect on CO2 emissions during 2011-2019, subsequently indicated a negative effect on CO2 emissions. Similarly, changes in the coefficient also occurred in the income inequality variable. Meanwhile, the population growth rate variable did not experience a change after the establishment of SDGs.

The results indicated that the United Nations' SDGs, which was declared at the end of 2015, is proven to be able to reduce the level of CO2 emissions, suggesting that Java and Indonesia's performance is relatively satisfactory and the movement in achieving the 17 goals in the SDGs is promising. SDGs are a manifestation of the United Nations' effort to advocate sustainable development agenda for its member countries.

Table 4. Estimate Variables Affecting CO2 Emission Before and After the SDGs Policy

Variable Independent	Coefficient (before SDGs policy)	Variable Independent (with dummy)	Coefficient (After SDGs policy)
GDP	4.023068	GDP*DM	-372.3948
POP	-24888.54	POP*DM	-29501.28
INEQ	-1396588	INEQ*DM	155862.3

This study also identified changes in the effect of per capita income, population growth rate and income inequality after the establishment of SDGs on CO2 emissions with calculation results presented in Table 4. It can be observed that independent variables had different effects on CO2 emissions. After the establishment of SDGs, increasing GDP per capita reduces CO2 emissions. These results indicate that there is a commitment to reduce CO2 emissions and efforts to reduce global warming. This analysis is in line with the findings in Equation 1 in that the SDGs have an influence in reducing CO2 emissions in Java. Various policies issued in the period after the establishment of SDGs appear to present a good influence in reducing CO2 emissions, including the National Action Plan for Climate Change Adaptation. With increasingly stringent regulations and the implementation of RAN-API, it is not impossible that this trend will continue. However, in accordance with these results, it is worth noting that CO2 emission reductions is not permanent and that monitoring and policy enforcement are required to keep the trend on the right track.

Table 4 demonstrates that income inequality also has a positive effect on CO2 emissions, which suggests that after the establishment of SDGs, high income inequality increases CO2 emissions. This positive influence is due to several factors, including the political factor and the power of the rich (Jorgenson et al., 2017). It stated that rich people with ownership of environmentally unfriendly companies often gain political power and dominate environmental policies with the influence they have. On the other hand, the poor will bear the environmental consequences and costs. Meanwhile, there is no difference in the effect of the population growth rate on CO2 emissions before and after the establishment of SDGs.

This study indicated that there are contradictions if the EKC concept is linked to the SDGs. Practically, there are two conflicting sides when connecting economic development with environmental quality. Goals related to economic growth, such as no poverty (SDG No. 1), no hunger (SDG No. 2), decent work and economic growth (SDG No. 8), and industry, innovation and infrastructure (SDG No. 9) are on one side, namely the goals in economic growth. On the other side are goals in environmental interests, such as clean water and sanitation (SDG No. 6), affordable and clean energy (SDG No. 7), sustainable cities (SDG No. 11), climate actions (SDG No. 13), ecosystems in water (SDG No. 14) and ecosystems on land (SDG No. 15).

Existing economic interests are often contradictory and sacrifice items on the other side of the goals. The contradiction between these two sides are more clearly seen if implemented in developing countries with economic dependence on their resources, for example the foreign direct investment (FDI). FDI is indeed the engine of economic growth in developing countries (Guzel & Okumus, 2020) and has various positive impacts on the economic sector such as reducing poverty and increasing employment, which in turn increases a country's economic growth. On the other hand, FDI has the potential to damage the environment through the negative externalities it creates, in addition to the fact that most of the investments made in developing countries are in the primary and secondary sectors. This condition is called the Pollution Haven Hypothesis (PHH). Research on PHH conducted by Guzel & Okumus (2020) proved that this phenomenon is evident in ASEAN countries, including Indonesia. This finding indicates that FDI in ASEAN countries has a negative effect on environmental quality and the Pollution Haven Hypothesis occurs in these countries. The environmental regulations of developing countries that are less stringent than those of developed countries are the reason for the occurrence of PHH, hence many companies invest in developing countries.

In dealing with the contradictions between the two aforementioned sides and the problems of PHH in developing countries, there are two SDGs points that can reduce the impact of existing contradictions, namely responsible consumption and production (SDG No. 12), and peace, justice and strong institutions (SDG No. 16). Responsible consumption and production leads to integrated waste management and consumption that is not excessive or based on the 3R concept (Recycle, Reuse and Reduce), while strong institutions can be useful to avoid illicit investments that cause environmental damage. Delimitation the scale of investment and promoting clean energy investment can also be carried out to minimize negative environmental impacts. Another suitable suggestion includes a tax incentive policy for investments using high technology with low energy intensity (Guzel & Okumus, 2020).

Research Implication

The results of this study suggest the presence of N-shaped EKC in Java, indicating that increase in environmental degradation will reoccur in the long term as in the early stages of development or technical obsolescence. The policy implication of the study results is that optimizing economic growth is one of the requirements to preserve the environment. The most certain form or effort to restore environmental degradation and damage that has been caused is to become a prosperous country or to become a country that is financially able to restore the environment. However, several views suggested that environmental improvement cannot be achieved by certain countries since their living standards or economy are far below the estimated turning point, which in the study refers to the first turning point. Achieving the status of a prosperous country takes a lot of time and resources. To do so, high economic growth is needed every year, but it must be supported by strong institutions in order to keep development within the sustainable corridor.

It is necessary to formulate and enforce policies with a long-term impact such as technological innovation. The process of reducing CO2 emissions with low-carbon technological innovations can create a scale effect or resource exploitation since the growth of economies of scale is not too dominant and technical obsolescence can be delayed (Aghion et al., 2019; Álvarez-Herránz et al., 2017). Technological innovation is needed by many countries presently and in the future, for example technological innovation in the production and disposal of industrial sector waste in Indonesia. Waste is still an issue in Indonesia, especially plastic waste. Approximately 7.8 million tons of plastic waste are produced annually in Indonesia and 4.9 million tons of them are not properly managed (World Bank, 2021b). In terms of waste management, it is therefore recommended to initiate technological innovations and start a circular economy (CE) aiming

to prevent excessive plastic pollution. CE is a form of effort to reduce environmental degradation and waste management in realizing sustainable development. In line with research by Sharma et al. (2021) and Ogunmakinde et al. (2022), waste management in the form of CE must be prioritized in achieving the SDGs. Furthermore, Ogunmakinde et al. (2022) argued that CE covers 10 of the 17 main goals in the SDGs. Another study conducted by Xue et al. (2019) declared that CE can reduce GHG and carbon emissions since the utilization and management of waste minimizes CO2 emissions.

Maintaining sustainable economic growth, formulating pro-environment policies, maximizing the use of new and renewable energy and increasing public awareness are other measures that are important to enforce. Maintaining a balance between economic and environmental interests can be accomplished by creating policies that are not only oriented to the economy but also to the environment. Subsequently, the promotion of new and renewable energy resources must also be carried out collectively by the government and people to reduce the use of fossil-based energy resources such as oil, coal and gas which remain Indonesia's mainstay. Increasing public awareness of the environment is equally important. It must be established starting from the scope of individuals, households, companies, and the state. Increasing environmental quality cannot be separated from public awareness such as awareness of the use of low polluting goods and regular use of energy.

In terms of environmental policy, the government of Indonesia established the National Action Plan for Reducing Greenhouse Gas Emissions in 2011 and the National Action Plan for Climate Change Adaptation in 2014 as the commitment in dealing with the environment and climate problems. Indonesia has set a target of reducing GHG emissions by 29% by 2030. This is a good step for the environment in Indonesia considering the importance of laws and regulations on climate crisis and energy use. These movements cannot be carried out only in certain countries, but instead must be conducted collectively by all countries to bring about a greater impact on environmental sustainability in the world.

In terms of population growth and income inequality, although population does not have a significant influence on CO2 emissions in Java, population growth must be controlled at a reasonable rate to reduce the risk of more complex problems such as poverty, income inequality and other problems. Likewise, for income inequality, although research results show that low level of income inequality increases CO2 emissions, this issue cannot be underestimated. It has to be addressed by the government of Indonesia considering the vast territory of the country, making it very possible for inequality to occur and persist. In general, there are a lot of measures that can be taken, namely technological innovations, waste management, maintaining sustainable economic growth, creating pro-environment policies, maximizing the use of new and renewable energy, increasing public awareness and controlling population growth rates and income inequality in Indonesia in general and in Java in particular as the center of government and economic activities of Indonesia.

CONCLUSION AND SUGGESTION

This research demonstrates that, in the short term, per capita income growth brings damage to the environment. However, this relationship shifts in the long run and forms an N-shaped curve. The existence of N-shaped EKC is detected, but is insignificant. Two inflection points of the curve, at Rp 154,297,936 and 1,136,629,791, are also examined and proved the difference in results with other studies. Population growth is not proven to have a large effect on CO2 emissions, in contrast to income inequality and the SDGs which affect CO2 emissions significantly. The form of N in the EKC occurs because the reduction in CO2 emissions is temporary and the environmental improvement that is less than optimal causes the increase in the pollution level to reoccur. This condition is commonly called "technical obsolescence" or obsolescence of technical effects. In the long term, public awareness of the environment and the policies that have been established are no longer effective.

The policy implication of the study results is that optimizing economic growth is one of the requirements to preserve the environment. The most certain form or effort to restore environmental degradation and damage that has been caused is to become a prosperous country or to become a country that is financially able to restore the environment. In an effort to achieve this, a high economic growth is needed every year, but must be supported by strong institutions in order to keep development within the sustainable corridor.

Long-term policies are therefore needed to prevent technical obsolescence such as technological innovation, waste management, maintaining sustainable economic growth, creating pro-environment policies, maximizing the use of new and renewable energy, increasing public awareness as well as controlling population growth rates and income inequality. There are other factors such as environmental awareness, energy use, environmental regulations, bureaucracy and others that might be used as a reference for further research. This study has several limitations, one of which is the availability of data. The incomplete data for several local areas should be addressed by the relevant government agencies since it will lead to low data quality and doubts over data reliability.

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Socioeconomic and legal analysis of court fees structure and payment system in Ethiopia: Towards a policy-oriented approach

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ABSTRACT

Court fees in Ethiopia are governed by the Court Fees Regulation Number 177/1945. Although many things have changed over the past 67 years, none of the consecutive governments attempted to revise the court fee system. The user charge on judicial litigation (court fees), is justified for the existence of negative externalities that each user (litigant) generates to society. This is generated by the existence of incomplete markets, where the private benefits of litigation differ from social benefits. The charge has to match both benefits (private and social) and reach a social optimal equilibrium. The argument is that when private litigation costs are less than the social costs, there will be an inefficiently high level of litigation. Methodologically, a total of 44 legal professionals with most frequent contact with the court and individuals undergoing trial were interviewed for operational purposes of the study. Key findings revealed that most respondents identified a problem with the existing court fee structure and payment system including controversies with respect to specified and unspecified claims. The new court fee will fill the gap that has existed since 1945. Thus, the court fee regulation should be amended in some respects according to the recommendations and steps based on this proposal across the three levels of federal courts.

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INTRODUCTION

Almost all countries in the world undertake legal and judicial reforms as part of their overall development programs. Such needs of improving the once established provisions result from growing recognition that economic and social progress cannot sustainably be achieved without modifying and maintaining respect for the rule of law and effective human rights protection, each of which requires a well-functioning judiciary system that can interpret and enforce the laws equitably and efficiently. From an economic perspective, one can look at the prospect of a market for legal services. The sector consists of the producers and consumers of legal services, and the legal services themselves. According to a study by Alula and Getachew (2008) and World Bank (2010a), several problems are identified as major causes of denying access to justice and efficiency of the court. These include the problems of caseload per judge, the duration of proceedings, cost per case, clearance rate, inaccessibility, customer unfriendly services,

corruption, low budget, delayed judicial service provision, shortage of facilities, acute lack of legal information, case backlog and congestion, shortage of manpower, shortage of lawyers, lack of legal aid, and lack of training.

Judicial congestion has clear negative impacts on economic performance. As part of a solution to this congestion problem, court fees system is believed to be a potential deterrent mechanism that causes a reduction of litigation by increasing the costs to the litigant, thereby reducing court congestion (He, 2011; Tahura, 2021a). Court fees are necessary to deter frivolous litigation or to direct different types of cases to appropriate courts or other non-judicial dispute resolution forms, such as counseling, mediation, or arbitration. In line with this, civil proceedings tend to involve claims for money or property. Money claims can be either specified (i.e. for a specific sum of money) or unspecified (i.e. for an amount to be decided). Claims in respect of property, a separate category, often involve possession claims in which a lender or landlord seeks possession of residential property due to unpaid mortgage or rent arrears (Mery, 2015). For instance, in Ethiopia from 2002 to 2012 Ethiopian calendar (EC), approximately 113, 759 and 31, 287 cases of cassation and judicial reviews were administered respectively in the form of specified money claims, unspecified money claims, and possession claims (FSC, 2020). The Ethiopian calendar (EC) is eight years behind the Gregorian calendar (GC, Western).

Court fees in Ethiopia are governed by the Court Fees Regulation Number 177/1945 EC. Ethiopia has seen three regimes over the last eight decades. These successive regimes adopted different policies for the development of each sector in the country according to the political ideologies governing the economic principles of their time. Although many things have changed over the past 67 years, none of the consecutive governments have attempted to revise the court fee system. Currently many lawyers, courts and legal bodies encounter a number of problems at work in relation to money (specified) claims and non-money (unspecified) claims which are not covered by this regulation. An unspecified claim is a tort claim "where the amount to be awarded is left to the Court to determine." Examples of unspecified claims are unspecified damages for personal injuries, such as from a motor vehicle accident (MVA) or medical malpractice, and interpersonal and/or collective violence among others. Also, due to devaluation of Birr over a long period of time, the current court fee for some cases does not cover even a fraction of the administrative costs of the judicial process.

The current amount of court fee payable by litigants is extremely low and disproportionate to the value of the claim. Given that courts are a limited and expensive public resource to operate, it is appropriate to seek recovery from users of some of the costs of their operation. Almost every country in the world charges its citizens for the use of its courts. Given the existing costs of administration of justice, civil and criminal, it is advisable to revise the existing court fee. The aim of the study is to assess the court fee structure and payment system in Ethiopia, as well as to identify areas of improvement. In particular, it has the objective of examining and proposing how court fees, which have not been revised for the past 67 years, can be raised without hampering the basic guarantee of access to justice.

The court fee changes proposed in this assessment report are intended as a first step towards making the judiciary financially self-reliant. In light of this, the study outlines the legal limits and restrictions for court fee system. Therefore, the study seeks to undertake a comprehensive review and economic analysis of the existing fee structure and payment system of federal courts, in light of the experience of other countries, and to provide recommendations for a new court fee structure and payment system that will address current problems and foresee future challenges. Therefore, this paper needs to achieve a number of policy objectives.

RESEARCH METHOD

The analysis was based on the primary data collected from key actors at different levels of practitioners. In particular, the legal professionals who had most frequent contact with the court and individuals undergoing trial were one category of users of the public justice service. There were also lawyers registered at the Bar Association or outside its district but occasionally acting for clients there, and various professionals belonging to the court and the public prosecution service: judges, court officials, and key informants. A total of 44 responses were received. Not all of the respondents answered the questions set out in the questionnaire. Some respondents provided an indirect response to the questions. These responses

were analyzed to make the study appropriate. Key informant interviews were also conducted with five clients of the court for triangulation purpose.

The questionnaires were administered to 44 participants (Table 1). When we see the profile of the 44 respondents in the questionnaire, 48% were lawyers/attorneys, 15 (34%) were judges, 8 (18%) were legal experts. Then, 14% of them had work experience of < 5 years, 33% had work experience of 5-10 years, 41% had work experience of 11-20 years, 12% had work experience of > 20 years. In terms of gender, 14 (32%) are women while 29 (68%) are men. In terms of age, the respondents who participated in the study were between 22 and 61 years and the average age of the respondents was 35 years. When we look at the educational background, 4 had PhD, 3 were PhD candidates, 16 had secondary degree (LLM) and the remaining 21 had first degree (LLB).

Table 1. Demographic characteristics of respondents

Category	Frequency	Percentage %
Judges	15	34
Practicing lawyers/attorneys	21	48
Legal expert	8	18
Total	44	100

Besides, secondary data were compiled on the basis of the existing regulations on court fee structure and payment system in light of the experience of other countries and the five years (2010-2019) court fee related data from the three levels of federal courts (FFIC, FHC, FSC) covering a range of issues such as non-payment of debt, personal injury, breach of contract, property, bankruptcy and family proceedings. Due to the descriptive nature of the study, the researcher adopted non probability (purposive sampling) method with a view to gather valuable data by selecting respondents with knowledge and direct experience regarding the area of the study.

Regarding the method of data collection, the interviews were conducted virtually (via email), face-to face with staff at offices, and through telephone communication. Information was collected through a questionnaire with open ended and close-ended questions based on reviews of relevant literature and incorporation of court fees related variables and important demographic information adopted based on Likert Scale for respondents rating.

The data collected from different primary and secondary sources were recorded, edited, organized, analyzed, interpreted and presented quantitatively and qualitatively by using descriptive statistical tools such as tables, percentages and graphs. In the analysis, the numerical values range from 1-5. The scale's range is 1: strongly disagree, 2: disagree, 3: neutral, 4: agree and 5: strongly agree. This range gives the weight of the responses. For example, in this study the total number of respondents was 44 people. If 5 people 'strongly disagree', the value would then be 5x1=5; if 7 people 'disagree', then 7x2=14, if 8 people 'neutral', then 9x3=27, if 10 people 'agree', then 10x4=40; and if 13 people 'strongly agree', then 13x5=65. The total score was 5+14+27+40+65=151 Points=151/44=3.43. It can be concluded that the respondents 'neutral' agreed to the question. Number one which is the least value in the scale was added in order to identify the maximum of this cell. The length of the cells was determined as follows: (i) mean score from 1 to 1.80 representing strongly disagree, (ii) from 1.81 to 2.60 representing disagree, (iii) from 2.61 to 3.40 representing neutral, (iv) from 3.41 to 4.20 representing agree, and (v) from 4.21 to 5.00 representing strongly agree.

RESULT AND DISCUSSION

Socioeconomic and Budgetary Background

According to World Bank (2020) the Gross Domestic Product (GDP) per capita in Ethiopia for the years 2010 to 2019 was US$341.0 in 2010, US$389.9 in 2012, US$449.4 in 2014 and in US$514 in 2016. The GDP per capita in Ethiopia was last recorded at US$602.20 in 2019. This is a growth of 56.7% in nine years. Ethiopia's economy experienced strong, broad-based growth averaging 9.9% a year from 2007/08 to 2017/18. Higher economic growth brought with it positive trends in poverty reduction in both urban and rural areas. The share of the population living below the national poverty line decreased from 30% in 2011 to 24% in 2016. According to World Bank (2019), Ethiopia's main challenges are sustaining its positive economic growth and accelerating poverty reduction, both of which require significant progress in job creation as well as improved governance.

Inflation is one of the key assumptions for revising the current court fee structure. The value of Birr has

depreciated considerably especially during the last five decades. However, the rate of court fees has never been revised, and it tended to increase a bit dramatically in the years of 2000 through 2019. In 2019, inflation rate for Ethiopia was 15.8% (Gudina et al, 2018; African Development Bank, 2018).

The Judicial Budget and Court Fee

Determining budgets for the justice sector is a contentious process in many countries including Ethiopia. In general, there was a steady increase of the court budget since 2007 and the total judicial budget allocated to all courts was 1,473,914,607 Birr for the past five years (Annual Report of Federal courts, 2011/12 EC). This statistical budgetary overview shows that the Ethiopian government spends a large share of its total budget on the courts. This study reveals that none of the court budgets has been recovered from the court fee generated income and as a matter of fact, this minuscule sum of money obtained from court services directly goes to the coffers of the Ministry of Finance (World Bank, 2010b). This study highlights a need to reconsider this court fee management system so that it is changed to enable courts make use of the money collected from court fee and related payments.

Nowadays, almost all countries charge a fee for the use of the judicial system unless otherwise stated. Court fees are payable at the time any claim is filed to commence a legal process requiring a fee (Kassay, 2018). The court fees of the Federal courts in Ethiopia are prescribed by Regulation Number 177/1945 EC. They are calculated on the basis of the amount claimed in the suit. For example, the court fee ranges on a gradual increasing schedule from as low as 0.50 cents for an amount of claim worth 10.00 Birr to as high as 3,350.00 Birr for an amount of claim worth 100, 000.00 Birr in case of direct suits.

Jurisdiction of any country requires its people to pay a court fee, unless people are found to be poor when they sue in court. The law that is still in force in Ethiopia is the 1945 regulation, which states that court fees must be paid for any service rendered by the court, no matter how small the amount can be. While the purpose of charging clients is to pay for the services rendered by the court, the reason given for charging a court fee is to ensure accountability of the party to the lawsuit.

Alejandro Esteller-Moré (2002) developed a simple model to explain why and under what conditions it is efficient to charge a court fee. The argument is that when private litigation costs are less than the social costs, there will be an inefficiently high level of litigation. The opposite can happen if the private costs outweigh the social costs. Therefore, the court fee can be positive or negative, i.e., in the form of a bill to lower the levels of litigation or a subsidy in order to increase it, if they are inefficiently low from the social perspective. Whatever the case, the court fee has always the same goal: to reconcile the social and private incentives to litigate (Tahura, 2021a). By the same token, Dari-Mattiacci and Saraceno (2020), Gabuthy, Peterle, and Tisserand (2021), and Massenot, Maraki, and Thöni, 2021) conducted an experiment in order to explore how the legal fee arrangement (i.e. flat or contingent fees) and the trial costs allocation rule (i.e. American or English rule) may shape the efficiency of the litigation process, via their effect on the lawyer's effort, the deterrence of frivolous lawsuits and the plaintiff's incentives to go to court.

In a judicial system without or with very small court fees, the litigants only cover their private costs and the State finances the system's costs. That generates excessive litigation, increased congestion, and delay in conflict resolution (Lupo and Bailey, 2014; Maxeiner, 2010). The charges of court fees permit the internalization of litigation costs, and serve as a barrier to entry into litigation (Mery, 2015). This is achieved by approximating the social costs to the private costs.

It is a fundamental element of maintenance of the rule of law in a civil society that citizens have fair and reasonable access to the courts. Dari-Mattiacci & Saraceno (2020) found that when adjudication is not perfectly accurate, litigants with unmeritorious cases may benefit from court errors, which in turn may result in a dilution of incentives for primary behavior and frivolous litigation. Kayuni (2015) argued that this increase is excessive and contravenes the constitutional right of access to justice, as poor litigants cannot afford the fees and thereby cannot access the justice system.

Potential Increase and Revision to Court Fees

This section outlines findings on how respondents (participants) view the revision of the court fee structure and payment system in civil and family cases. All responses received were fully considered in undertaking this assessment and recommending the way forward (Table 2). Many respondents believed

that the current court fee should be reviewed. The majority of the respondents (73%), strongly agreed on amending and raising the amount of court fee whereas 9% of respondents disagreed with the proposal. The respondents who agreed with the proposal commented that: (i) it would encourage the use of alternative dispute resolution and will reduce congestion; (ii) it will be modest and proportionate.

Besides, 61% of respondents also agreed that the current court fee regulation which was issued 67 years ago does not reflect the current reality, and 84% of the respondents strongly agreed that the existing court fees are low and not commensurate with the time's entire expenditure and living standard and thus the fee need to be revised. In addition, 68% of respondents strongly agreed with the proposed amendment of the court fee structure to take into account the inflation. Also, it is important to develop a new regulation on court structure and payment system (He, 2011).

Among the major arguments made by the respondents who disagreed with the proposal was that the fees would restrict access to justice, and that they would deter people from bringing claims. On the other hand, six responses out of 44 strongly disagreed that no increase in fees was needed at all. They also emphasized that the existing level of the fee is even excessive and unreasonable. They frequently used the words 'unfair', 'prohibitive' and 'disproportionate'. The increased fee would act as a barrier, deterring and discouraging individuals access to justice. Generally, and statistically, there is no significant difference between respondents regarding the proposed revision or improvement of the existing court fee.

Table 2. The Views of Respondents on Potential Increase and Revision to Court Fees

No	Items	1	2	3	4	5	Mean
		.....		%	.....		
1	Do you agree to the proposal to amend the court fee?	9	-	-	18	73	4.45
2	Given the fact that this regulation was issued 67 years ago, stating that the cost stated therein do not reflect the current reality is better	61	23	5	11	-	1.66
3	In your view, will improving (enhancing) court fees have a significant positive impact on the performance of the judiciary?	11	9	11	50	20	3.66
4	No amendments were made to the Court Payment Regulation issued 67 years ago. In addition, in light of the current purchasing power (inflation), economic development and other realities, it is important to develop a new regulation on court structure and payment system.	-	-	-	32	68	4.68
5	It is important to provide the highest quality court service, payment structure and system in accordance with needs of the 21st century.	-	-	-	14	86	4.86
6	Citizens' access to justice is considered a fundamental human right by international standards, and modernization of court fees does not infringe on citizens' right to justice. Therefore, the court must be careful not to infringe on this huge right.	-	-	-	25	75	4.75
7	Existing court fees are low and not commensurate with the times. The fees need to be improved and revised.	5	-	-	11	84	4.70
8	Enhancement of court fee will have a positive effect on reducing unconfirmed cause of action, minimizing g court congestion, speeding up the administration of justice, and avoiding undue harassment of the other party, as well as preventing the courts from engaging in congestion.	5	-	-	20	75	4.61
9	Do you believe that the amount of court fee set out in Court Regulation No. 177/1945 is reasonable?	34	27	-	11	9	1.80
10	Do you believe that the amount of judicial fees should only be increased if the judicial service quality has improved from its current state?	9	5	7	18	61	4.18
11	Increasing/improving judicial fees will not have a negative impact on access to justice the judicial process.	7	7	5	11	70	4.32
12	Proportional increase in court fees may lead the client to choose between litigation and alternative dispute resolution (ADR).	5	-	7	61	27	4.07
13	It is reasonable to charge high court fees (fully cost recovery) for high-profile commercial disputes	7	5	7	36	45	4.05
14	The court should use the court fee collected from clients for court administration (i.e cost recovery) rather transferring the money to the Ministry of Finance	7	-	5	18	70	4.45
15	Under the current system, government institutions are exempted from court fees. Do you believe this practice should continue in terms of legitimacy?	7	9	18	66	-	3.43
16	Court fees are being paid for filing cases to the Cassation Division. In light of the nature of cassation, should court fees be paid in the at the Cassation level.	34	20	-	41	5	2.61

1: Strongly disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly agree

By the same token, respondents were asked about how much of an increase should be made and there was some difference between the responses received. The majority (57%) of respondents agreed with the proposed increase as much as 1- 5% of the value of the claim in specified money case. Interestingly, 29% agreed with the proposed increase of 6-10%, while only 14% of the respondents agreed with the proposed increase of 11-20%. During the interview, there was strong support for increasing the amount of court fee. It was considered that increasing the amount of court fees will have a significant positive impact on the performance of the judiciary and tribunals in the future. Those 84% of the respondents who agreed with this statement justified that it is important to provide the highest quality court service, payment structure and system.

Most importantly, 61% of the respondents strongly agreed that the amount of judicial fees should only be increased if the judicial service quality is going to be improved from its current state. This finding implies that for the future the court fee income needs to directly go into and be part of the judicial budget. 52% of the respondents also agreed that the court should use the court fee collected from clients for court administration rather than transferring the money to the Ministry of Finance. In line with this, two key informants explained that enhancement of court fee will have a positive effect towards discouraging applications with unconfirmed cause of action, reducing court congestion, speeding up the administration of justice, and avoiding undue harassment of the other party and to improve the performance of the court.

A key informant stated that courts incur significant costs in hearing and ruling on civil and family cases, and that claimants and applicants should contribute towards these costs. There was also some acknowledgement that the current fees did not cover all the costs involved in administering court cases. Although many of the respondents did not demonstrate clear support for an increase in fees, there was little strong opposition either. However, a common unprompted view from the respondents was that the court service need to be modernized to be more efficient, and a recognition that the process of change would require additional funding. A small number of participants reported that if there were to be an increase in court fees they would like to see the money invested in improving court services. They need to give courts the resources that would enable them to speed up the process of service provision. This particularly related to improving the efficiency in the resolution of cases, and also the quality of information and service they provide.

Regarding high court fees for high-profile commercial disputes, those respondents in support of this proposal gave such comments as the nature of these cases warranted charging a higher fee, the fees were reasonable, especially for cases that have significant monetary value, and it was preferable to charge higher fees in these cases to ensure the commensurate cost recovery rate rather than charging higher fees in other types of disputes. 45% of the respondents agreed that those who bring very large claims in relation to commercial, financial, property and other business matters in any level of the Federal Courts, whether in Addis Ababa or Dire Dawa, should pay the full cost of the proceedings.

Government organizations which have disputes in courts are exempted by law from the obligation of paying the court fee in a form of money or in kind. With regard to the exemption, 16% respondents argued that there should be no exemption. And, the majority, i.e., 66% of them, argued that Government organizations should be exempted from court fees. It was observed that 18% of respondents were neutral to answer this particular question. Experience of some countries showed that courts may exempt certain persons or classes of persons from payment of the user fee, including indigents, bankruptcy case of trustees, pro bono attorneys, and pro bono alternative dispute resolution neutrals among others.

With regard to the nexus between increasing the amount of court fee and alternative dispute resolution (ADR), the majority (61%) of respondents agreed that the proportional increase in court fees enables the client to resort to ADR instead of litigation. In this regard, it is expected that an ADR method would be preferred. Back in the 1980s, experts and executives alike heralded ADR as a sensible, cost-effective way of keeping corporations out of court and away from the kind of litigation that devastates winners almost as much as losers.

Respondents were also asked about cost recovery fee and respondents who agreed with the proposal for an increase did so based on the notion that the fee would be proportionate to the sums that were being

claimed. Most respondents (70%) accepted the principle that fees charged in the courts should be set at a level to recover the full cost of the service. It can therefore accept the justification for charging "increased fees" to generate income from fees beyond what is needed to cover the basic cost of providing the service in the courts. Calculations to determine the cost of the services have been made under the assumption that all fees would be paid in full in every case. The term "cost recovery", therefore, refers to the setting of fees at the cost price calculated before fee remissions are taken into account. Many of the respondents who supported the proposal commented that this was a logical step if the fee was to be increased.

The other controversial issue related to court fee is judicial review. Judicial review is a process by which individuals, businesses and others can ask a court to review the lawfulness of a decision, act or omission of a public body. Such proceedings can be brought, for example, to decide whether a public body has acted outside its powers, has followed a lawful process, or has come to a rational decision. The judicial review process is, therefore, a critical check on the powers of the state and is a key mechanism for individuals to hold the executive accountable. However, the current fees for judicial review are found out to be controversial and debatable by many respondents. Regarding court fees for judicial review cases, 34% of the respondents supported the abolition of the fees charged at the cassation/judicial review stage. The cassation bench is not established for the purpose of judicial review. It is established to correct fundamental error of law; therefore, it is better to replace the word judicial review by correcting fundamental. However, 41% of the respondents agreed that court fees for judicial review work in the High and/or Supreme Court are modest and relatively insignificant in the general context of costs and fees.

An Economic Analysis of Court Fee

Court fee collected at federal courts shows an increase between 2010 and 2019 (Table 3). The amount of court fees collected increased from 28 million Birr in 2010 to 129 million Birr in 2019. The average annual growth rate in this period was 17%. There was a mild fluctuation in the value of fees collected from courts. However, in 2017, there was a surge in the value of fees collected. According to a linear trend forecast, the court fees are forecasted to increase by 18 million Birr annually.

The five years' federal courts budget in Ethiopia is shown by Figure 1. The budget allocated from Ministry of Finance shows a persistent and sharp increase between 2015 and 2019. The allocated budget increased from 184.2 million Birr in 2015 to 389.8 million Birr in 2019. The average annual growth rate of the budget allocation was 18%. The court budget is forecasted to increase by 52 million Birr annually. The total number of cases at federal courts in Ethiopia is shown by Figure 2. The total number of cases at federal courts showed a surge between 2010 and 2019, with an increase from 10,602 in 2010 to 19,454 in 2019. The average annual growth rate in this period was 7%. According to the forecast, the numbers of cases are forecasted to increase by 860 annually.

Table 3. Court Fee Collected from The Three Levels of Federal Courts in Ethiopia, 2010-2019

Year	Federal First Instance Court	Federal High Court	Federal Supreme Court	Total
		Birr		
2010	10,511,520.66	11,767,463.36	5,883,731.68	28,071,715.70
2011	12,339,979.97	12,402,956.72	6,201,478.36	30,944,415.05
2012	13,408,192.24	10,728,170.24	5,364,085.12	29,500,447.60
2013	15,889,248.10	36,681,755.40	18,340,877.70	70,911,881.20
2014	18,747,634.65	28,429,638.10	14,214,819.05	61,392,091.80
2015	21,074,863.92	25,916,139.26	12,958,069.63	59,949,072.81
2016	22,198,992.31	31,191,172.02	15,595,586.01	68,985,750.34
2017	28,441,332.09	157,254,485.36	78,627,242.68	264,323,060.13
2018	61,508,871.48	72,672,414.92	36,336,207.46	170,517,493.86
2019	67,459,653.25	41,350,074.28	20,675,037.14	129,484,764.67
Total	271,580,288.37	428,303,269.66	214,197,134.83	914,080,693.16

Source: Federal Courts of Ethiopia (2020)

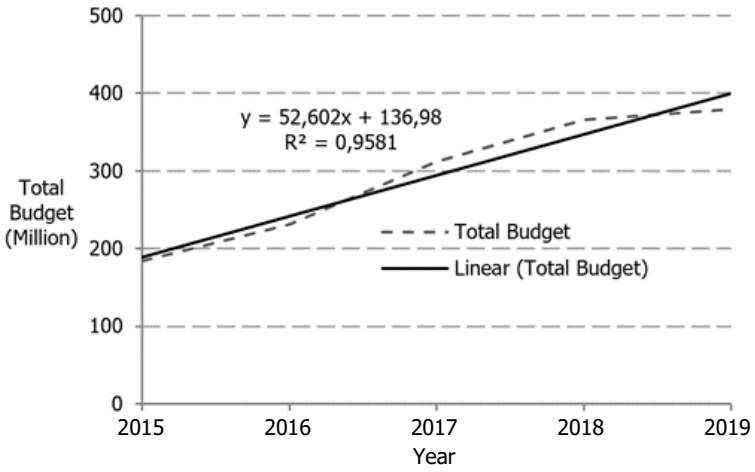

Figure 1. The Budget of federal court in Ethiopia, 2015-2019 (Federal Court of Ethiopia, 2020)

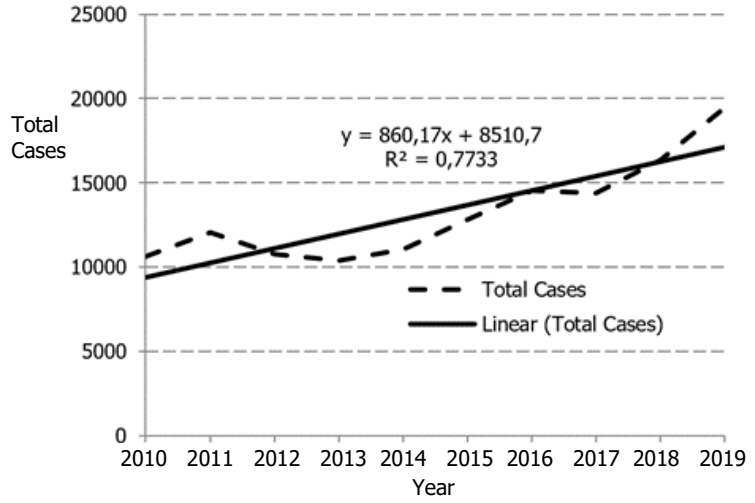

Figure 2. The total number of cases of federal court in Ethiopia, 2010-2019 (Federal Court of Ethiopia, 2020)

In particular, this survey identified some of the most common types of cases to appear in civil courts: disturbance of possession, tax evasion/avoidance, and/or loans, moral and material damage, inheritance, husband and wife property division of marital (common) property, housing disputes, farmland, enforcement, contractual disputes, construction contract, insurance money, warranty, loan agreement, stock share, contract, lease, VAT, interest & property estimate, government money, business, and some others.

Fees, fines and other payments get revised periodically to match with the changing socio-economic condition. Although the total values of fees collected by the Ethiopian Federal courts is significant and covers significant portion of the budget of the courts, the claim values and fees are paid based on the 1945 court fees regulation. The study considered the following justifications for court fee and claim value revisions.

On average, as mentioned above, the number of cases increases by 860 annually. This surely brings high volume of workload to the courts. Court fees have a role to play in the number of cases that will be brought to the courts. Generally, higher court fees are likely to reduce the number of cases and minimize work load.

According to Index Mundi, inflation between 1965 and 2017 in Ethiopia increased from 4.7 to 249 (2010=100). This means that the inflation indicates 53 fold increase for the stated period. Given this persistent increase in the overall prices in the country, fee and claim value estimates revision is rational.

Considering the increasing number of cases, the persistent inflation and the anticipated contribution that the fee revision will have to the budget of the courts, the following rates have been suggested. The fee value rate starts from 10% and falls to 0.05% to account particularly for inflation and large number of cases that would be brought to the courts (i.e., services). As discussed above, there is a wide margin of discretion for the lawmaker or the respective state organ which determines the court fee structure. Yet, this model can show what structures can be chosen to establish a court fee system that is in line and compatible with the aforementioned standards, particularly right to access justice enshrined in the 1995 Constitution.

Court Fees and Cases To The Civil and Family Courts

Accordingly, the affordability and in particular willingness to pay increased court fees are also linked to the different motivations claimants and applicants had in seeking redress through courts. Clients/participants who strongly opt for going to court (particularly for family related matters) will still decide to go to court even if they have to pay the hypothetical increased court fee. Four out of five participants felt that their determination to pursue their case meant that an increased fee was not a barrier to them, with some reporting that they had to pay it as they already tried alternative methods to resolve their dispute and felt they had no other choice.

Participants reported that they would consider the cost and benefit of starting court proceedings, taking into account the increased fees. Civil claimants in specified money cases said they would consider the higher court fees and calculate it against the claim amount and their chances of winning. Whereas, civil money claimants acknowledged that they took into account the risk of not winning the case. For some, this and a higher fee raised doubts as to whether they would have felt it was worth taking a case to court. Three out of five key informants stated that they would have still proceeded to take their case to court with the increase in fees although some reported that they would be unwilling to pay much more than 10% of the claim value.

Three out of five interviewed clients/customers in the study felt that they could afford the increased court fee, and that the proposed fee amounts would not have deterred them from bringing their cases to court. This view was linked to their ability to pay legal and court fees, their representation status and their primary motivations for starting court proceedings which partly depended on the type of case they were bringing to court. Five out of eight clients in this study stated that participants bringing civil and family cases to court typically felt that court fees were affordable, and they would not have been deterred from starting court proceedings if court fees had been set at the higher levels they were asked about in the study. The research found that participants were motivated by a number of factors to use courts. Court fees were not a key factor when most participants considered deciding to take their case to court. Participants expressed strong belief in the validity of their cases and typically believed that they would win the case. One key informant typically saw court fees within the broader context of overall legal costs. Those who paid for their own representation perceived court fees to be a low proportion of their overall costs, and court fees were less important in their decision making.

On the whole, participants who paid for legal representation felt that they could (and would) pay the increased court fee as it was seen as a marginal increase in the overall cost of their case, which they felt they could afford. "I would have paid because it is small money compared to the other costs". However, individuals with fewer financial resources – many of whom had either not paid for their representation or litigated in person – were more likely to report that the proposed increased fees would have made them consider the affordability of the fees when deciding whether to bring the case to a court, although they also felt that the hypothetically increased fees would still have been unlikely to deter them from seeking redress through courts.

Participants were asked about their views on specific changes to court fees, whether they would be willing to pay 5-10% of the claim. They mentioned that more than 10% of claim value would be too much and would stop them from proceeding.

The increase in court fees potentially lessened appetite to proceed with a case for some civil claimants making specified money claims, who

reported that the decision to go to court was influenced more by financial concerns and an analytical assessment of costs, risks and benefits. These claimants reported that they would need to consider whether the increased court fees they were presented with would be too high to justify bringing proceedings. A few of these participants felt that, on weighing the costs and benefits of bringing a case to court under the proposed scenario, they would no longer consider it worthwhile bringing their case to court. Most civil claimants reported they would not be prepared to pay much more in excess of 10% of the claim value. Overall, most claimants and applicants in the study felt that they could afford the increased court fee that was put to them, and that the proposed fee amounts would not have deterred them from bringing their cases to court. The key findings of this research revealed that court fees were not considered to be a primary factor in influencing decisions to take cases to court.

Research Implication

An increase of the court fees in Ethiopia is undoubtedly justified. Increasing fees should not be done arbitrarily, but must be well reasoned and follow some general principles which are shown in the following text. The new court fee will fill the gap that has existed since 1945, which needs amendment in some respects with the following research implications.

First, the proposed regulations set out new proposed fees. The researcher proposed the amendment of the court fees of the Federal courts in Ethiopia prescribed by Regulation Number 177/1945 EC. The proposed regulations aim to set fees that (i) encourage the optimal use of court services, (ii) are based on efficient and transparent costs, (iii) do not impede access to justice, and (iv) introduce fees and fee structures that are easier for users to understand, and for the Supreme Court to administer.

Second, court fee should be sent income directly into the judicial budget. As shown above, it is a legitimate goal to levy court fees for the purpose of fully or partially recovering the expenses of the court system. It is, however, not legitimate to levy court fees just to generate an income for the general state budget. All or some percentage of the income collected from the court fees should directly go to the judicial budget. Ethiopia, like most other countries, should have an independent budget for the courts, which is independently administered by the Federal courts.

Third, court fees should be increased at least for inflationary adjustment. Regarding the specific amount of the court fees, the critical issue is, that fees shall not be so high, that the access to justice is put at stake. This question, however, is inextricably linked with the economic situation, especially with the monthly minimum wage and the monthly average salary. Concerning the issue of access of justice, it has to be taken into account that in the specific case of Ethiopia, a functioning legal aid, an ADR and a well working mediation system do not yet exist. Additionally, there is no litigation insurance in Ethiopia, which, if applied, could ease the financial burden of going to court. This means that the amount of court fees charged is highly sensitive and still the most important factor regarding an access to justice. So, any increase must be handled with care.

Fourth, special exemption or reduction of court fees should be applied. Based on the types of plaintiffs, some can be exempted from court fees right from the beginning. This can be people who only receive the minimum wages or who may receive lower amount of state pensions or social welfare subsidies and benefits. When such exemption is made, people may be obliged to bring forth evidences from pertinent offices such as district administration or what we call Kebele or Woreda as proof for their incapability to cover the court fee. Regarding this group of people, some guidance may be sought from the exemption rules as provided by the new federal court fee (work invalids, war veterans, blind persons). In such cases, the respective privileged status must be proven by documentary evidence according to the respective social law. There should be a possibility to exempt them from the court fee or to grant them a reduction of the court fee or to charge the court fee exceptionally not in advance but after the court proceeding has ended or to pay fees in installments. Respective regulations can be included in the Law on Legal Aid (which in its current form does not comprise any provision on court fees) or in the context of the abovementioned Civil Procedure Code provisions. Such a proceeding will require an application by the plaintiff and sufficient documentary evidence that no financial means are available to pay the court fee.

Fifth, court fee rate should be set as a flexible decreasing percentage of claim value. A court fee can be determined which not only amounts to a set of fixed

percentage of the claimed value but also shows a varying degree of percentage to make sure that in the end regular plaintiffs cannot financially afford any more to file claims for high amounts of money (see for example the British and German court fee). It can be reasonable to have a 5% starting fee for a certain amount of claim value which is subsequently declining down to 0.5% for the highest claim values. To strengthen this statement, De Mot & Miceli (2019) found that when trials involve a contest over liability, the adjustment may exceed plaintiff litigation costs. A larger adjustment increases litigation costs but offsets the less-than-certain probability of plaintiff recovery.

Sixth, higher court fees for types of cases involving economically stronger plaintiffs should be set. When we look at the socioeconomic background, it seems reasonable to charge higher court fees from plaintiffs who -unlike ordinary plaintiffs- can afford to pay based on their economic situation. Commercial cases involve their very nature private business companies and registered entrepreneurs. These kinds of plaintiffs can regularly afford to pay any reasonable court fee. In administrative cases on construction permits, regularly higher sums are at stake, and someone who has enough money set aside for building a house or bigger structure can also be asked to contribute a higher share to the court budget. To charge higher court fees for these types of cases will not infringe the constitutionally enshrined basic right of equal treatment. By the same token, Qin, Yang, He & Sun (2021) found that the relation between litigation risk and cost of capital attenuates among big companies, state-owned companies, informationally transparent companies, and companies is located in regions of higher social trust.

Finally, there is no doubt that any effort made to utilize and enhance digitization (Tahura, 2021b). If the government is serious about taking advantage of the potential digital payment systems have, then efforts should be made on developing a clear strategy for digitizing. This attempt needs a holistic view of the changes required across the organization, including payment processes, the supporting technology and the activities and resources required to achieve this plan of modernizing the court system. Moreover, realizing the direct impact these changes can have on all parties involved is a critical lesson learned from previous unsuccessful digitization initiatives, particularly on adoption and behavior towards these payments.

CONCLUSION AND SUGGESTION

Most respondents identified a problem with the existing court fee structure and payment system including controversies with respect to specified and unspecified claims. An effective justice system that interprets and applies the law fairly, impartially and without undue delay is fundamental to citizens' rights and a well-functioning economy. This study provides a summary of the responses for the court fee revision proposal at the federal courts of Ethiopia. Revising the court fee structure should contribute towards the recovery of the costs of running those services. In making the case for an increase in court fees, it is important to note that Ethiopia has not applied an inflationary increase to civil fees since 1945. The fees have remained static, whilst significant changes have taken place across the political and economic platforms of the country.

Basically, measuring the effectiveness of justice systems is not an easy exercise. An effective justice system thus requires taking into account three essential aspects, namely the quality of the justice system, its independence, and the efficiency with which it operates. Cognizant of the fact that these three factors are inseparable, a court fee revision is prepared with a view to have an objective, reliable and comparable data on justice systems to achieve more effective justice in all Federal courts of Ethiopia.

In order to ensure access to justice right of citizens, it is vital that judicial branch continues to be funded properly. Income raised through fees payable by users will necessarily play a significant role in the funding of the system. Overall, the findings of the assessment shows that these fee increases will not prevent people from bringing proceedings. We recognize, however, that the increases may make some litigants reconsider whether they wish to pursue litigation in light of the cost and the prospects of success, including the likelihood of recovering a judgment against the respondent

Additionally, due to large number of cases every year, there is a need to increase the court fees to achieve a higher degree of cost recovery. Indeed, it is important to keep in mind that the high degrees of recovery can be achieved by improving the overall infrastructure of the court. The Ethiopian court system, however, lacks these special characteristics. Such a goal will not be illegitimate and would rather be considered healthy within the framework of the

practice of other countries as bench mark. All in all, the new system in Ethiopia aims encouraging or discouraging litigation of the dispute with a little burden to the system as much as possible. This study further recommends the implementation of the revised court fee to tackle the ever-increasing inflation and low purchasing power. By doing so, among other benefits, the number of cases in courts can be minimized.

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Are social conditions important to increase household income? The case of coastal fishers in Makassar City, Indonesia

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ABSTRACT

Social conditions strongly influence changes in household income because they play a critical role in improving the household welfare of coastal fishing communities. The purpose of the study is to analyze the influence of social conditions on the growth of fisherman's household income in Makassar City, Indonesia. Quantitative research method using survey instrument was addressed to 46 fishers' households by applying the purposive sampling technique. The analytical method used was multiple regression with the exponential function model. This study found that social factors such as the age of the head of the family and the number of working family members contributed to changes in the increase in household income because they had a significant positive effect. On the other hand, the number of dependent household members did not contribute anything because it had a negative effect on changes in the income level of fishers' households. Likewise, the wife's level of formal education did not affect the household income. Related to social factors as a determinant of improving the fishers' household economy, efforts to increase it can be made through on-fishing and off-fishing. On-fishing is carried out with the support of a gross tonnage boat. Household members do off-fishing in postharvest handling, handling, processing, and marketing marine products.

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INTRODUCTION

Marine fisheries have an essential role in social development (Nguyen et al., 2022) to achieve sustainable development goals (Eriksson et al., 2017; FAO, 2020). The marine fisheries sector is still a mainstay for most coastal communities whose livelihoods are fishers. Fishing communities living in coastal areas can take advantage of the natural resources found in the ocean. The potential of capturing fisheries resources can be used to increase income which is expected to improve the welfare of fishers' households. However, the reality is that many fishers still have not been able to increase their catch (Lein & Setiawina, 2018). Fishers' poverty rate (Teh et al., 2020) and their welfare generally occupy the lowest stratum compared to other communities on land. Revenue from marine products is a source from the sea, while other income comes from land (Parashar et al., 2016). Both are referred to as fishers' household income. The size of household income will affect household consumption expenditure. Household income and consumption expenditure are part of the household economy (Hastuti et al., 2021; Michael et al., 2010)

Most of the coastal fishing households in Makassar City still rely on work as fishers to fulfill their household needs. Meanwhile, the rest rely on family members who are fishers' wives with low education. This phenomenon is a social condition that can affect changes in household income. In another case, economic conditions such as fishing business and non-catch income are parts of household income, so they are not factors in fishers' household income. Social conditions or social factors play a critical role in alleviating poverty in coastal fishing communities (Islam et al., 2011). The poverty experienced by fishing communities will cause the community's ability to weaken in developing their neighborhood and improve their social welfare. Social, economic, and cultural factors can influence fishers' decisions (Bisack & Clay, 2020; Marín-Monroy & Ojeda-Ruiz de la Peña, 2016) in improving their household economy locally and nationally (Ng'onga et al., 2019) and globally. The global fisheries sector is critical to the world's most vulnerable communities' socio-economic well-being and food security (Bose et al., 2020). The phenomenon of social conditions will provide opportunities to improve conservation policies (Boubekri et al., 2022) for the welfare of coastal fishing communities.

Many studies on the social and economic conditions of fishers' households have been conducted in various countries, such as social information on the risk behavior of small-scale fishers in Africa (Dannenberg et al., 2022). However, studies of social conditions specifically as an essential factor in increasing fishers' household income have never been carried out. In Bangladesh, the main determinants of fishers' resilience are social capital of fishers' household income (Islam et al., 2011) and social capital (Hossain & Banik, 2022). Furthermore, social capital and participation play an essential role in the small-scale fisheries governance system in the Gulf of California, Mexico (Nenadovic & Epstein, 2016). Other studies include the factors affecting the socio-economic and welfare of artisanal sea cucumber fishery in the Pacific Islands (Purcell et al., 2016), the effect of household socio-economic factors on seagrass beds (household income, number of adults, number of children) and adaptive capacity (alternative livelihoods, ownership of fishery assets) in the Indo-Pacific (Jones et al., 2022), and the social conditions for fishers provide opportunities to improve conservation policies in Algeria (Boubekri et al., 2022). In Indonesia, Vibriyanti (2019) conducted a descriptive study of socio-economic factors that affect the household income of captured fishers in Kendari City. However, studies of social conditions specifically as an essential factor in increasing fishers' household income have never been carried out.

Although social conditions or social factors cannot directly affect fishers' household incomes, such as catches, they have a crucial role in the economic contribution of the household. Those factors include the number of working family members (Manyungwa et al., 2019; Rahim et al., 2021), the wife's education level (Fesanrey et al., 2020; Hao, 2012; Rahim & Hastuti, 2018), the age of the head of the family (Lein & Setiawina, 2018), and the number of family members (Hao, 2012). The social conditions of coastal fishing communities play a vital role in alleviating poverty in coastal communities. Poverty will make the community's bargaining position in developing the region and improving social welfare to be weak. Social factors can be regarded as social information (de Oliveira Estevo et al., 2021; Manyungwa et al., 2019) because they relate to a person's behavior in making risky decisions in the life of fishers. In addition, the opportunity to improve conservation policies is also related to the social conditions of fishing communities. Based on this description, this paper aims to analyze the influence of social conditions as a determining factor of changes in the household income of fishers in coastal areas. The results of this study can be used as a material for policymakers to improve the welfare of coastal fishers.

RESEARCH METHOD

The research was conducted in the coastal area of Cambaya Village, Ujung Tanah District, Makassar City, Indonesia. The research method used was quantitative with a survey instrument to estimate the household income of small coastal fishers. Cross-section data were used from a survey of fishers' households. Questionnaires were given to 46 respondents by applying the purposive sampling technique. The analysis method used was multiple regression with the exponential function model (equation 1). This model analyzes the estimated household income of small-scale fishers with variables (age of the head of the family, wife's education, dependent family members, and working family members) which are considered essential.

$$FsHIc = \beta_0\, AgHH^{\beta_1} WfEd^{\beta_2} NFDp^{\beta_3} NWFMbr^{\beta_4}\, \mu \quad (1)$$

Furthermore, to facilitate the calculation of the regression, the double log method or natural logarithm was used as follows:

$$FsHIc = \beta_0 + \beta_1\, LnAgHH + \beta_2\, LnWfEd + \beta_3 LnNFDp + \beta_4\, LnNWFMbr + \mu \quad (2)$$

Where $FsHIc$: fishers' household income (IDR, rupiah); β_0 and β_6 are intercepts; $\beta_1, \ldots, \beta_4$ are regression coefficients of the independent variable; $AgHH$ is age of head of household (years); $WfEd$ is wife's education (years); $NFDp$ is the number of family dependents (people); $NWFMbr$ is the number of working family members (people); and μ is an error term.

Equation (2) was supported by measuring the model's accuracy (adjusted R^2). It was also supported by hypothesis testing (F-test and t-test) and testing the classical assumptions, such as multicollinearity and heteroscedasticity (Gujarati & Porter, 2009). The goodness of fit model was calculated by using

$$Adjusted\ R^2 = 1 - (1 - R^2)\frac{(n-1)}{(k-1)} \quad (3)$$

where $Adjusted\ R^2$ is adjusted determination coefficient, *k* is the number of variables (not including the intercept), and *n* is sampling numbers. The hypothesis testing of the regression coefficients used *F-test* with a certain confidence level:

$$F\ test = \frac{ESS/(k-1)}{RSS/(n-k)} \quad (4)$$

$$F\ table\ [(k-1):(n-k);\alpha] \quad (5)$$

For testing on the partial regression coefficients, t-test was used with a certain level of confidence:

$$t\ test = \frac{\beta i}{S\beta i} \quad (6)$$

$$t\ table\ [(n-k);\alpha/2] \quad (7)$$

where β_i is the regression coefficient of *i*. $S\beta_i$ is the standard error of the regression coefficient of *i*. Furthermore, the multicollinearity test used the Variance Inflation Factor (VIF) method :

$$VIF = \frac{1}{1-R_j^2} \quad (8)$$

R_j^2 was received from auxiliary regression between the independent variables and dependent variables, where if VIF < 10, there is no multicollinearity. Another case is the heteroscedasticity test using the *Glejser* method with regression of the absolute value with independent variables. *Glejser* suggests performing the following residual functions : (Gujarati & Porter, 2009)

$$\hat{e}_i = \beta_0 + \beta_1 X_i + v_i \quad (9)$$

$$\hat{e}_i = \beta_0 + \beta_1 \sqrt{X_i} + v_i \quad (10)$$

$$\hat{e}_i = \beta_0 + \beta_1 \frac{1}{X_i} + v_i \quad (11)$$

$$\hat{e}_i = \beta_0 + \beta_1 \frac{1}{\sqrt{X_i}} + v_i \quad (12)$$

If the coefficient of β is not significant through the t-test, there is no heteroscedasticity. Instead, if β is significant, the model contains heteroscedasticity.

RESULT AND DISCUSSION

Socioeconomic and Budgetary Background

The fishers' household income in the coastal area of Cambaya Village, Ujung Tanah District, Makassar City came from income from fishing and non-catching businesses. The income from the fishing business came from revenues (catch production and fish prices) minus operational costs per trip. Non-catch income came from other businesses (salted fish processing business). Income from the fishing business was certainly not enough to be used for household needs, so non-fishing activities (other livelihoods) were needed.

Most of the fishing households in the coastal area of Cambaya Village, Ujung Tanah District, Makassar City still relied on work as fishermen to meet their household needs. Fishers did fish activities every day (except Friday) in the afternoon and returned home at dawn or in the morning. The rest of the time was used to rest. On Friday, it was customary or cultural for the people in Cambaya Village to worship Friday prayers while resting and repairing fishing gear equipment (fishing nets and boats/boats).

Table 1. Household Income of Coastal Fishers

Household Income	Frequency	Percentage
		%
≤1,000,000 rupiah	0	0.00
1,000,000–2,999,999 rupiah	32	78.26
≥3,000,000 rupiah	14	11.74
Total	46	100.00
Fishing business income (rupiah)		2,551,560.87
Non-catch income (rupiah)		205,434.78
Fishers' household income (rupiah)		2,756,995.65

Note: US$1 = 15,000 rupiah (IDR15,000)

The average household income of fishers in the sample area was 2.7 million rupiah per month. The income came from the contribution of fishing (IDR2.5 million) and non-catch income from fishers' wives (IDR205 thousand). The distribution of household income was dominated by 32 fishing households (78.26%) between IDR1 million – IDR2.9 million. In comparison, IDR3 million were 14 households (11.74%). In Vietnam, fishers' household income from fishing and aquaculture is VND 100,000 – 150,000, and fish processing is VND 150,000 – 250,000, with the contribution of women fishers each being 20% (Hao, 2012). According to Islam et al. (2011), various livelihood assets outside the fishing business contribute to fishers' household income. It is different from the West coast of USA, in that the source of income for fishing is lower than non-fishing sources (Norman et al., 2022). In general, fishers' household incomes are highly dependent on sea fishing businesses such as seagrass beds (Jones et al., 2022). In addition, marine resources such as coral reefs as food providers (Cordeiro et al., 2021) and mangrove forests as a place to live for various kinds of biodiversity (Chamberland-Fontaine et al., 2022) can have an impact on improving the economy and welfare of fishers' households.

The results of the multicollinearity test do not show multicollinearity because the VIF was less than ten. Furthermore, the heteroscedasticity test shows that the Glejser test coefficient (β) was insignificant, so it is concluded that there was no heteroscedasticity. The measurement of the model with Adjusted R2 shows that the independent variable contributed as many as 67.2%, while other variables not included in the model contributed 32.8%. Testing of the calculated F-test hypothesis shows that all independent variables simultaneously affected household income. Furthermore, the individual (partial) effect was shown by testing of the t-test hypothesis (Table 3). The social condition variable in this study was used as a variable affecting the fishers' household income, the age of the fisherman, the education of the fisherman's wife, the number of family members borne, and the number of working family members (Table 2).

The productivity of the head of the family, mainly working in the capture fisheries sector, was influenced by his physical condition. Age generally influences physical conditions. The higher the age level, the more mature in terms of physical and maturity in thinking. In addition, at a certain level, it will cause a decrease in physical power and affect productivity in carrying out economic activities. The age of the head of the family as a social factor had a positive and significant effect on fishers' household income at an error rate of 5% or a 95% confidence level (Table 3). As the age of the head of the family, in this case, fishers, increases, household income will increase. It is proven by the fact that most of the head of household respondents were still in the productive age group in catching fish. Age 15-64 years (45 heads of household with a percentage of 97.78%) dominated the age of the head of household (Table 2).

Table 2. Social Condition of Coastal Fishers

Description	Frequency	Percentage %
Age of head of household		
15–64 years	45	97.78
≥65 years	1	2.22
Total	46	100.00
Wife's education		
No School	16	34.78
Elementary school	14	30.43
Junior high school	10	21.73
High school	6	13.06
Total	46	100.00
The number of family dependents		
3-5 people	27	58.69
≥6 people	19	41.31
Total	46	100.00
The number of working family members		
0 people	38	82.60
8 people	8	17.40
Total	46	100.00

The increasing age of fishers shows their work experience and increases in their work in catching fish (Kim et al., 2020). Likewise, in Taiwan, fishers who have reached the age of 40 are of productive age in producing catch production (Lu et al., 2020). In addition, fishers support their household economy in the research area by supporting their wives and children. According to the age group, the head of the family who was no longer productive in carrying out fishing activities was one person with a percentage of 2.22%. Working as a fisherman demands a good amount of physical fitness, so age is an essential factor in choosing a profession (Baruah & Hazarika, 2019), along with other social factors in this study such as the wife's education, the number of family members covered, and the number of working family members.

Table 3. Estimation of the Influence of Social Conditions on the Household Income of Coastal Fishermen

Independent Variable	E.S.	Coefficient (β_i)	t-test	Sig	VIF	Glejser Test
Age of head of household	+	0.248**	2.290	0.024	1.526	0.126
Wife's formal education	+	0.042	0.687	0.960	1.159	0.217
Number of family dependents	+	- 0.014**	- 2.401	0.035	1.033	0.145
Number of working family members	+	0.194***	2.114	0.010	1.357	0.167
Intercept						13.832
F-test						2.812
Adjusted R^2						0.672
Sample size (n)						46

Notes: *** and ** denote significant level at 1% and 5%; ES is an expectation sign. If the VIF value is less than 10, then there is no multicollinearity; otherwise, if VIF value is greater than 10, then multicollinearity occurs. If the Glejser test coefficient (β) value is not significant, then it is not available heteroscedasticity; otherwise, the Glejser test coefficient (β) value of β significant, then there is heteroscedasticity

The following social factor is that the formal education of the fisherman's wife did not affect her household income (Table 3). This finding is not in line with the research by Adili & Antonia (2017) where in Tanzania, the Indian Ocean, education affects fishermen's household income. This happens because of the low education of fishermen's wives. Coastal fishermen women in Cambaya Village, Ujung Tanah District, Makassar City still had a low level of formal education, especially fishermen's wives. The fisherman's wife's formal education level consisted of no primary school, elementary school, lower secondary school, and high school. Most coastal fishermen's wives, namely 16 people (34.78%), did not earn education in school. The highest education level was only high school, as many as six people (13.06%) (Table 2).

The low level of education of fishermen's wives in Indonesia causes a lack of wife contributions in providing information and knowledge about the marine sector (Rahim & Hastuti, 2018). Similarly, Hao (2012) found a low level of education for women in Vietnam's fishing households. In increasing the household income of fishermen, it was usually the wife who did other activities to bring in additional income. In the research area, the wife earned an additional income and helped sell her husband's catch (fishermen) in fresh or processed form, such as salted fish, although most of their household income comes from catches (Table 1). The role of the wife in looking for additional income was very prominent during the famine season when the husband (fisherman) could not go to sea. In addition, the wife managed more of her household finances and as well as her household members, such as preparing food and drink for her children and monitoring their schooling.

The education of fishermen's wives is related to creativity in decision-making in managing the household economy. Although generally, the husband as the head of the household has a higher education level than his wife. Women's education can be rational decision-makers in their households, especially in their family consumption expenditures (Rahim et al., 2021). Education as an indicator of human resources is the essential component in influencing the quality of human behavior and positively impacts a person's life behavior to improve the standard of living of his family (Ramadhan et al., 2017). Formal education will provide better knowledge, for example, family financial arrangements where Indonesian fishing households are known as wasteful people and find it difficult to save money and use it to increase household assets. According to Rahim et al. (2021) formal education can also be used as an indicator to measure productivity and the ability to manage business capture so that they dare to take risks in the business.

As the head of the family, fishermen in the coastal area of Cambaya Village, Ujung Tanah District, Makassar City had a small number of family members, namely six people or 41.31% (Table 2). The number of family dependents had a negative effect on household income at an error rate of 5% with a 95% confidence level (Table 3). Each increase in the number of family dependents will reduce household income. However, fishing households in the research area did not affect productivity in fishing activities. In addition, as heads of households, fishers have realized a great responsibility in providing for their wife and their many children. Coastal fishing communities have adopted the slogan in their regions (South Sulawesi

Province in particular Makassar City): "many children (means) much fortune".

The number of dependents as a household characteristic may include dependence on marine resources for livelihood (Muallil et al., 2013) and the household income of fishers (Jones et al., 2022). In addition, household dependents are also related to the amount of consumption expenditure in a household, both food and non-food. The consumption expenditure will be an impetus in increasing household income both from the catch and outside the catch. It affects work productivity and encourages work enthusiasm to increase income. It affects household spending (Rahim et al., 2021).

A large number of working family members has implications for additional sources of income. Furthermore, the number of working family members positively affected household income at an error rate of 1% or a confidence level of 99%—the purpose of increasing family members who work to increase household income opportunities. The working family member was fishers' wife, which was only eight people (17.40 %) from 46 fishing households. The wife's role as a household member in coastal areas was not only as a housewife but also in carrying out productive activities to increase household income, such as processing salted fish. The raw material for processed fish came from the husband's catch. Processed salted fish were made and directly sold to consumers. The business had no legal entity nor operating license, and used simple technology.

The average income of fishers' wife reached Rp. 205,000 per month from the total household income (Table 1). The income of fishers' wives as salted fish processors was very dependent on the catch from their husbands, while the husband's catches had low economic value. The uncertainty of income obtained by the head of the family as a fisherman encouraged other household members, such as wives, to work to meet the needs of household life. The results of this study differ from Ameyaw et al. (2020) in Ghana in that the role and contribution of women to the fisheries sector are under-recognized and under-documented. Even though the wages of women workers (fishers' wives) are lower than men (fishers as husbands), they can complement or meet their household needs.

The work carried out by the wife and head of the family in a fisherman's household had the same characteristics because it depended on the season. Working family members such as fishers' wives can reduce the burden on their husbands (fishers) as the head of the family and increase income in the family to meet their needs. When the income of the head of the family increases, the income tendency of fishers' wives also increases. Its contribution impacts changes in household income even though it is small. So, business development outside the capture fisheries sector is critical, considering the level of income from the fishery sector is still low because it is strongly influenced by the season.

Research Implication

Globally, the capture fisheries sub-sector, especially small-scale fishermen, has impacted economic and social development in developing countries, especially Indonesia. In addition, its contribution has supported the livelihoods and well-being of more than 500 million people worldwide and is an important source of income for the world's fishermen (Barnes-Mauthe et. al., 2013). Although it is part of economic development, the level of welfare is still below other sectors. Generally, it occupies the lowest stratum compared to other communities on land, even as a marginal group (Asiedu et al., 2013). Small-scale fishermen are also referred to as the poorest group in all countries with the attribute of the poorest of poor. According to Rahim et al. (2019), ironically, as many as 32.14% of the 16.42 million coastal community members in Indonesia still live below the poverty line with an income of US$1 per day or a monthly income per capita of US$7-10.

International fisheries policy through the Committee on Fisheries (COFI) has supported the sustainable development and protection of small-scale fisheries in the context of producing two-thirds of all catch targeted for direct human consumption and providing 90% of employment (FAO, 2016). The purpose of fisheries development in Indonesia is to improve the welfare of fishermen and other coastal communities through the development of economic activities, increasing the quality and quantity of human resources, strengthening socio-economic institutions, and optimal and sustainable use of marine and fishery resources (Rahim et al., 2019).

In relation to household income earned by fishermen, it is strongly influenced by social, economic, and technological conditions. In this study, social factors can be considered social information (de Oliveira Estevo et al., 2021) because they are related

to a person's behavior in making risky decisions in the life of fishers. It has an essential role in alleviating poverty in coastal communities (Manyungwa et al., 2019). Social conditions or factors in the form of fisher's age, wife's education, number of working family members, and number of family dependents are important factors in increasing fisher's household income as an economic factor. Household income is income from fishing business and non-catch income.

Social conditions such as age level affect the productivity of fishers based on their physical strength so that they determine their attitude in deciding to fish at sea. The fisher's age is more important than the fishing experience. According to Liao et al. (2019), the age of fishers influences attitudes and perceptions of fisheries management. This can impact economic development, especially capture fisheries in coastal areas. With the age of fishers still productive, it will have implications for increasing income through knowledge, skills, collaboration, and learning in terms of fishing in the sea. This is in line with the findings of Muallil et al. (2013) in the coastal areas of the Philippines, that younger fishers catch fish more often than older ones.

Increased knowledge and skills are related to the education of fishermen's wife through empowerment. Empowerment is related to the ability of individuals or communities with social awareness to gain greater independence in building balance in community relations (Wiber et al., 2009). About fisheries management, empowerment is a mechanism to provide change to influence the future of fishermen in their communities (Kabir et al., 2011). Empowerment of fisher's wives can be done through skill-based literacy education programs such as reading, writing, arithmetic, and learning skills. Skills education in coastal areas is very necessary, because women are not only required to accompany their husbands but also increase household income through mastering more productive skills such as making salted fish which they have been working on so far. The empowerment of women fishermen is a form of participation and decision-making process to diversify, innovate, develop new markets, and maintain sustainability and the future (Freeman & Svels, 2022). Based on this, it can further improve the household economy so that it also has an impact on the economic development of coastal areas. Sustainable management of small-scale fisheries requires a balance in achieving socio-economic goals (Ninef et al., 2019). Sustainable fisheries development in several coastal areas (Peng et al., 2021). Efforts to improve the socio-economic aspects of small-scale fishers are to increase household income which can be carried out gradually and involve various interested parties.

In addition to social factors as a determinant of increasing fishers' household income, efforts to increase it can be made by on-fishing. Fishing can be carried out by the head of the household, namely fishers, through fishing businesses with the support of boats with a strength of 50-100 gross tonnage (Boesono et al., 2016) with in-board machines used by modern or large-scale fishermen. Outboard motor boats with a power of 3-10 gross tonnage (Amron et al., 2021) or power knots with outboard engines are used by traditional or small-scale fishermen (Rahim et al., 2020). The power of fishing boats/boats to reach the fishing ground as fishing grounds in the territorial sea (Pho Hoang Han, 2007) or the Exclusive Economic Zone of 200 nautical miles (Rowlands et al., 2019) for motorboats and 6 to 12 miles for motorboats paste. In addition, it is also equipped with modern, environmentally-friendly fishing gear in the form of fishing rods and nets. So, social conditions or factors on household income (catch and non-capture income) will have profound implications for fisheries management, poverty alleviation policies, and fisheries economic development worldwide.

CONCLUSION AND SUGGESTION

The findings of this study indicate that social factors such as the age of the head of the family and the number of working family members make the most significant contribution to increasing household income because they have a significant positive effect. It happens because the age group is classified as productive, and there are many family members, so fishers work diligently to catch fish. In contrast, the number of dependent family members has not provided the most significant contribution because it has a negative effect on changes in the income level of fishers' households. However, the husband's responsibility as the head of the family is still carried out towards his wife and children. Furthermore, the wife's variable level of formal education does not affect household income. It happens because the level of formal education is still deficient, so it affects decision-making in the household.

Based on the findings, social factors such as the formal education of fishers' wife need to be considered. Increased education of the wife as a working family member will impact increasing household income. In addition, the wife can manage finances in household consumption expenditures, earn additional income, help sell her husband's catch (fishers) in fresh or processed form, and manage household members (children). So, the education of fishers' wife is related to creativity in decision-making in managing the household economy. For this reason, learning programs are needed to increase knowledge, skills, and creative attitudes, such as empowerment in the form of knowledge, technology, and family management. The empowerment of women fishers is crucial to providing knowledge and skills relevant to the marine potential in coastal areas. The women are involved in marketing marine products after processing fish whose fresh raw materials are obtained by fishers.

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Women's income contribution and its effect on food consumption: An evidence from Aceh Province, Indonesia

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ABSTRACT

Consumption of each society is closely related to micro and macro conditions, as the income received by each community will affect their lifestyle patterns. The higher the income, the greater the expenditure on food and non-food consumption. Women have considerable potential in contributing to income, especially in poor households, but women do not stand out and claim that they are the main support in providing the economy for the family. The purpose of this study is to analyse the effect of women's income in the short and long term and predict food consumption in Aceh Province in the future. The model analysis used in this study is a partial adjustment model with panel data from 23 cities/regencies in Aceh Province. The next step is to predict the level of consumption in each district and city, and make a regional analysis based on the geographical conditions of this province in four regional divisions to get an aggregate depiction of the differences in food consumption levels in each region. Regional development strategy should be made based on the estimation results and prediction of consumption levels and women's empowerment in development participation in this province in the future for food security development program.

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INTRODUCTION

Consumption rate of the Indonesian people is currently growing and in line with economic growth. In economic growth, household aggregate consumption expenditure gives a sizeable contribution (Wicaksono et al., 2020). Economic growth will cause household income to continue to increase, with economic growth having an impact on demand from the community, both industrial goods and agricultural goods themselves. In this case, it can be seen from the expenditure of Indonesian household consumption at current prices according to expenditure rate which continues to increase every year. In 2021, Indonesia's total household consumption expenditure reached 9,236,010.03 billion rupiah (BPS, 2021). The Central Bureau of Statistics of Indonesia (BPS) distinguishes the consumption of the Indonesian population into two, namely food consumption and non-food consumption.

In general, public consumption also affects economic stability, where the level of change in consumption depends on the level of economic activity itself. Meanwhile, welfare is measured by the proportion of expenditure for consumption in the household. The proportion of expenditure on food consumption is lower than consumption expenditure

for non-food. This indicates that the household is classified as a high-income household (Lailani & Maulida, 2022). Consumption rate of each society is also closely related to micro and macro conditions. As the income received by each community will affect their lifestyle patterns. The higher the income, the greater the expenditure on food and non-food consumption (Lailani & Maulida, 2022).

In line with these conditions, in supporting the economy of the family, women also contribute. Today many women are already working. Women have considerable potential in contributing to income, especially for poor households, but women do not stand out and claim that they are the main support in providing the economy for the family (Ramli, Tambani, & Kotambunan, 2020). The demands between work and family make women have multiple roles in the family (Nova & Attiyyah, 2022).

Consumption is determined by the number of residents. The population of Aceh Province was 5.3 million people in 2020 (BPS, 2022a). However, in that same year, there was a decline in the population of around 96,661 people. Consumption expenditure is closely related to population. If the population increases it will expand market share due to increased demand for goods and services that will encourage economic growth (Minta et al., 2022).

The study of consumption is quite an interesting topic to get an ideal formulation of how the economic behaviour is shown by individuals or households as well as what is the consumption behaviour in the economy as a whole. Basically, consumption is the study of how much money is needed for current consumption and future consumption (Deaton, 1992). A static study considers balance in the long term while a dynamic study is a study that considers time and its nature in the short term. In basic economic theory, the study of consumption is divided into micro concepts and macro concepts. In the micro approach, consumption is seen as an entity or unit of a particular household, then spent on the purchase of goods and services to obtain satisfaction and meet the needs of each individual itself. Consumption expenditure depends on the amount of income received by the household and its consumption trend (Deaton, 1992) Food consumption is a certain pattern in individuals, households, groups or communities which is defined as a measure formed from habits, standardized in various types, quantity both in terms of nutrition which includes indicators of healthy, sufficient and safe, obtained from food ingredients. The dimension of understanding from this definition is the existence of the subject who consumes, when and how often to consume and how the consumption is carried out. The consumption pattern of each entity is basically varied, not distinguished between low income or poor and high-income rich entities. Household consumption behavior to maintain consumption is to save some of their income for future retirement and households choose their consumption level based on their assets. Related studies can be seen in Deaton (1992), Deaton (1997), and Soraya & Afiatno (2021). Meanwhile, the data of this paper were macro data on consumption and the percentage contribution of aggregate income. Previous articles related to consumption expenditure in Aceh Province were conducted by Lailani & Maulida (2022) and Minta et al. (2022). In contrast to those articles, this paper uses a dynamic approach with panel data where current consumption expenditure is influenced by previous period of consumption. The purpose of this study is to analyse the effect of women's income in the short and long term and predict food consumption in Aceh Province in the future.

RESEARCH METHOD

This paper studies the household economic model, where consumption activities will not be separated and the use of labour from the household is prioritized. Households are consumers of goods and services, so the income of these consumers is a very important factor in determining the pattern of demand for goods (Noviar et al., 2022; Prasekti, Sulismiati, & Rohmah. 2017). The dynamics of household-income will result in changes in demand for various types of goods, because the income of buyers is the inverse of their purchasing power. Studies on this include, among others, by Ghina & Sukarno (2021) and Haque (2005). In other words, income is also closely related to household consumption expenditure. In addition, the consumption expenditure of the public depends on the highest income they earn. In this case, women also take part in the household economy.

Households' income sources basically originate from production factors owned by households such as land, labour, capital, expertise and skills. Women are an inseparable entity of household components. Women also make real contribution to household income, even including food processing innovations

(BPS, 2018; Noviar et al., 2022), thereby generating household income and increasing spending on food consumption. This study used panel data on Food Consumption Expenditure from BPS (2022b) in 23 cities/regencies in Aceh Province in 2018-2021. Figure 1 shows the conceptual flow of writing and the achievements of this paper, starting from the phenomenon of women's income in relation to consumption and its relation to food security. It is expected that the results of this study can be a source for consideration to formulate a food security strategy. To obtain additional information on the results of the estimate, forecasting was carried out to strengthen the arguments obtained in the previous partial adjustment model estimates.

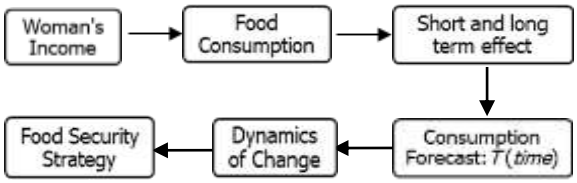

Figure 1. Research Conceptual Framework

The simple dynamic model of consumption can be stated as follows (Cheng, Yang, & Zhou, 2020; Li, Liu, & Song, 2020; Shoko, Chaminuka, & Belete, 2016).

$$cons_{it}^{*} = \alpha_0 + \alpha_1 w\_inc_{it} + e_{it} \quad (1)$$

$cons_{it}$ is function of income (w_inc_{it}) and prior income (w_inc_{it-1}) where $t = 1 \dots T$ and $i = 1 \dots N$ are cities/regencies in Aceh Province. Assuming $cons_{it}^{*}$ is unobservable variable, the model was then rearranged to find the solution consumption as follows.

$$cons_{it} - cons_{it-1} = \delta(cons_{it}^{*} - cons_{it-1}); \text{ where } 0 < \delta < 1 \quad (2)$$

$$cons_{it} = \delta cons_{it}^{*} + (1-\delta) cons_{it-1} \quad (3)$$

When equations (1) and (3) are combined, then:

$$cons_{it} = \delta(\alpha_0 + \alpha_1 w\_inc_{it} + e_{it}) + (1-\delta) cons_{it-1} \quad (4)$$

The consumption partial adjustment model of dynamic panel data regression is:

$$cons_{it} = \beta_0 + \beta_1 w\_inc_{it} + \beta_2 cons_{it-1} + \varepsilon_{it} \quad (5)$$

The estimated equation is semi-logarithm, because the data is on the percentage of women's income. Therefore, only our consumption data was transformed into logarithmic form, and the consumption model becomes:

$$\log cons_{it} = \beta_0 + \beta_1 w\_inc_{it} + \beta_2 cons_{it-1} + \varepsilon_{it} \quad (6)$$

Where $\beta_0 = \delta\alpha_0$ is constant $\beta_1 = \delta\alpha_1$ income elasticity, $\beta_2 = 1 - \delta$ speed of adjustment or short and long-term effect and finally $\varepsilon_{it} = \delta e_{it}$ is defined as stochastic error term. The most recent researches using this method were previously conducted by Li et al. (2020) and Yin, Zhou, & Zhu (2016).

There were several steps in estimating the panel data regression model. First, applying the Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). Second, choosing which of the three models is the most appropriate for analysis through the Chow, Hausman and Lagrange-Multiplier (LM) tests (Hill, et al., 2018). Third, interpreting, analysing and drawing conclusions from the most appropriate model. Model selection hypothesis was conducted by comparing the statistical probability values and =0.05. The next estimate was to forecast the consumption expenditure. The use of forecasting methods must contain a degree of uncertainty. There is no forecast that is absolutely 100% correct, but forecasting is needed for consideration, planning and decision making. Therefore, indicators are needed in assessing forecasts that can be used as information and materials for this purpose. The test instrument used to measure the accuracy of forecasting in this article was the root of the mean squared error (RMSE) and the absolute value of the symmetrical mean absolute percentage error (SMAPE). Actually, there are several other forecasting accuracy measurement tools which mostly measure of the accuracy of over-predicting and under-estimating predictions. Basically, one measuring instrument to another is almost similar, therefore, RMSE and SMAPE were used (Ghysels & Marcellino, 2018; Makridakis et al., 1997; Tofallis, 2013).

RESULT AND DISCUSSION

Women's Income and Consumption

A descriptive figure of women's consumption expenditures and incomes is shown in Table 1 and 2. In general, the average food and beverage consumption expenditure of Aceh Province can be described as divided into 4 regions including the Southwest region consisting of Simeulue Regency, Aceh Singkil, South Aceh, West Aceh, Aceh Southwest, Nagan Raya, Aceh Jaya, Subulussalam City. Then the Eastern Region, namely the regencies of East Aceh,

Aceh Besar, Pidie, Bireuen, North Aceh, Aceh Tamiang, Pidie Jaya, Langsa City, and Lhokseumawe City. The Central Region consists of the regencies of Southeast Aceh, Central Aceh, Gayo Lues and Bener Meriah. The last is the administrative and port areas, namely Banda Aceh City and Sabang City. In addition to discussing about women's consumption and income, this paper also explains the poverty line in Aceh Province, where the city/regency with the highest poverty line was Aceh Singkil Regency at 20.36%. It was followed by Pidie Regency at 19.59%. The city/regency with the lowest poverty line was Banda Aceh City at 7.61%. The Human Development Index (HDI) analysis was divided into men and women, where the HDI in the cities/regencies of Aceh Province was predominantly male than female. The highest HDI for the male and female categories was in Banda Aceh City, with the percentage of men in 2020 87.8%, and 87.9% in 2021. The percentage of women's HDI in 2020 was 83.6% and in 2021 was 84.0% (Table 1).

Based on the regional division, on average, the first rank with the most expenditure on food and beverage consumption was Banda Aceh City, and the second most was Aceh Regency in the Southwest Region West, where the total food consumption expenditure was 119,326 rupiah per capita per week and beverage consumption expenditure was 406,945 rupiah per capita per week. The third area with most F & B expenditure was Lhokseumawe City in the Eastern Region, with a total consumption expenditure of 109,338 rupiah per capita per week and the amount of beverage consumption expenditure which was widely available in Pidie Jaya Regency as much as 429,605 rupiah per capita per week. The last area was Gayo Lues Regency in the Central Region, with a total consumption expenditure of 103,132 rupiah per capita per week and the amount of beverage consumption expenditure which was mostly found in Bener Meriah Regency as much as 352,238 rupiah per capita per week.

This study employed data on average consumption expenditure of food and beverage and the contribution of women's income in cities/regencies of Aceh Province (Table 2). The average expenditure on food and beverage consumption was mostly in the city of Banda Aceh. Expenditure on food consumption attained 180,802 rupiah per capita per week and beverage consumption expenditure of 746,789 rupiah per capita per week. This could be because Banda Aceh is a capital city and an administrative center where many people travel or do transaction in this city.

Table 1. Income, Consumption Expenditure and HDI

Cities/regencies	Women's Income Share	Consumption	Poverty Rate	HDI Male		HDI Female	
				2020	2021	2020	2021
	%	Rupiah/capita.week	..... %				
Simeulue	24.7	47,490	18.98	71.8	72.1	56.0	56.4
Aceh Singkil	28.3	53,993	20.36	75.1	75.2	63.4	63.7
Aceh Selatan	27.9	76,655	13.18	70.8	71.1	64.9	65.2
Aceh Tenggara	31.3	56,674	13.41	73.9	74.0	68.7	68.9
Aceh Timur	29.7	78,792	14.45	72.7	72.8	62.3	62.5
Aceh Tengah	37.9	96,599	15.26	74.0	74.2	72.1	72.1
Aceh Barat	30.3	134,709	18.81	76.0	76.2	65.2	65.5
Aceh Besar	25.7	102,891	14.05	76.7	76.8	72.8	72.9
Pidie	31.8	106,960	19.59	73.8	73.9	69.1	69.2
Bireuen	39.7	112,312	13.25	75.7	75.7	71.8	71.9
Aceh Utara	34.6	65,081	17.43	72.6	72.7	67.2	67.4
Aceh Barat Daya	30.6	69,158	16.34	72.6	72.8	65.2	65.5
Gayo Lues	37.0	111,218	19.64	72.6	72.9	64.6	65.1
Aceh Tamiang	27.5	64,815	13.34	75.7	75.9	62.0	62.3
Nagan Raya	27.5	117,467	18.23	74.1	74.2	66.9	67.1
Aceh Jaya	38.6	115,197	13.23	74.6	74.6	66.7	66.8
Bener Meriah	29.7	88,842	19.16	75.1	75.4	72.6	72.9
Pidie Jaya	34.9	109,230	19.55	76.5	76.9	72.6	73.0
Banda Aceh	28.1	209,810	7.61	87.8	87.9	83.6	84.0
Sabang	33.2	139,868	15.32	78.1	78.6	74.9	75.1
Langsa	27.3	115,243	10.96	79.7	80.0	76.2	76.4
Lhokseumawe	23.5	124,024	11.16	80.8	81.0	76.7	77.0
Subulussalam	37.0	55,079	17.65	70.6	70.9	60.1	60.5

Source: BPS (2021; 2022a; 2022b), processed

Table 2. Descriptive Overview of Women's Consumption and Income

Descriptive statistics	Income (*w_inc*)	Consumption (*cons*)
	%	Rupiah/capita.week
Mean	30.913	172,133.5
Median	30.225	90,468.5
Maximum	39.67	927,591
Minimum	23.28	45,460
Std. Dev.	4.453156	169,947
Skewness	0.296451	1.904
Kurtosis	2.111859	6.612
Jarque-Bera	4.371259	105.578
Probability	0.112407	0
Sum	2843.97	15836284
Sum Sq. Dev.	1804.585	2.63E+12
Observations	92	92

Table 3. Stationary Panel Test

Variables	Hadri Z-stat	Sig.	Heteroscedastic Consistent Z-stat	Sig.
Log constant	40.16550	0.000	41.6258	0.000
Income (w_inc)	5.73541	0.000	4.99126	0.000
Lag Income	5.02534	0.000	5.19917	0.000

Size: 23 cities/regencies of Aceh Province
** assuming asympotic normality

Table 4. Model Selection Mechanism of Women's Income

Testing Mechanism	Probability	Model	Goodness of fit
Chow	0,1656	CEM	0,0530
Hausman	0,0000	FEM	0,5205
Lagrange Multiplier	0,0000	REM	0.0530

Decesion: FEM

The stationarity test of the data for a relatively small sample used Hadri's unit root test method (Table 3). Tests were carried out for normally distributed data. Unit root test method for panel data along the error term (ε⟧ _it) across units i and between time t (Hadri, 2000) was done. It shows that the data were stationary or there was no unit root over time and across cities/regencies in Aceh Province. This finding is in line with the study of across countries (Manu et al., 2011). Thus, it can be concluded that the estimation process at the data level can be carried out using a dynamic panel data model.

The next step was model estimation. Based on the estimation results of three dynamic panel data regression models, the results were quite diverse. The estimation of the CEM model shows none of the coefficients were significant. Meanwhile, the result of the estimated coefficient of less than one shows a magnitude that was consistent with the limitations of the dynamic partial adjustment model, especially the lag variable coefficient of women's income.

The three model selection test instruments, the FEM and REM models, were considered (Table 4). Meanwhile, based on the goodness of fit results from the model, FEM was the choice in this study. However, the REM model were still considered by making a comparison model as shown in Table 5.

Table 5. Comparison and Selection of Model of Women's Income

Variable	Coefficient	Std. Error	t	Sig.
Common Effect Model				
Income (w_inc)	-0.7795	0.4322	-1.8033	0.0759
Lag Income	0.7938	0.4326	1.8340	0.0710
Constant	11.5147	0.6907	16.6712	0.0000
Fixed Effect Model				
Income (w_inc)	0.6140	0.5181	1.1851	0.2423
Lag Income	2.7267	0.5421	5.0295	0.0000
Constant	-91.3143	19.2314	-4.7482	0.0000
Random Effect Model				
Income (w_inc)	-0.7795	0.3767	-2.0693	0.0424
Lag Income	0.7938	0.3770	2.1056	0.0391
Constant	11.5147	0.6019	19.1290	0.0000

The third model, namely REM, shows the estimation results of all significant coefficients and the magnitude of the coefficient numbers, especially for women's income lag coefficients of less than one. This requires that the partial adjustment coefficient encounters the criteria for the interval limitation of this dynamic model, so that the REM model can predict the effect of women's income in the long term. However, the sign of women's income coefficient is not significant in theory of consumption. Even so, this brake model is still relatively precise compared to the CEM and FEM models. Thus, the Random Effect Model was chosen to interpret the short-term and long-term dynamic adjustment model of the influence of women's income on consumption.

Meanwhile, the sign of a negative female income coefficient was not theoretically consistent. Therefore, the decision to use FEM was relatively better than using CEM. In the FEM model, the coefficient or elasticity of women's income was not significantly greater than the critical limit or a significance level of 0.05. For the female income lag variable, which is a measure of the speed of adjustment, the coefficient obtained exceeded the interval limit of men from one, so this estimation result could not be used to interpret the magnitude of the effect in the long term.

Table 6. Estimated Women Income on Food Consumption, using Random Effect Model

Variable	Short-term	Long-term	Sig
Constant	11.5147	55.84197	0.0000
Income (w_inc)	-0.7795	-3.78012	0.0424
Lag Income	0.7938	3.84964	0.0391

The Random effect model was used to explain the short-term and long-term effects of food consumption in Aceh Province (Table 6). Statistically the variables in this model were significant. In addition, there was consistency between consumption theory and income as indicated by the positive sign of the income coefficient. To interpret the long-term coefficient, the value of the income lag coefficient must be in the interval of $0<\delta<1$. The REM model shows consistency and theoretical significance of the partial adjustment mechanism. This model can also explain the variations between regions and between times that have different levels of consumption and income. In the long run the income coefficient became elastic >1, but the sign of the negative coefficient was not significant in theory. Women's income in the long run was elastic but inversely proportional to the level of consumption, may be indicating efficiency in the household. In other words, the average percentage of women's income contribution was more than 30% and in the long term would increase their role, but the level of food consumption decreased, due to scarcity of some types of food.

Furthermore, in the long term the constant rate increased by 55.84197 (Table 6). This indicates that in the consistent estimation results of autonomous consumption theory, food consumption has increased, meaning that there is an improvement in the type of food consumed if there is an increase in the percentage contribution of women's income in the household. However, the sign of the negative coefficient certainly requires a more thorough interpretation. In simple terms, women's income is certainly not directly spent on food. The possibility that can be happen is that the income will be saved or taken home first (take-home pay). However, this still requires further comprehensive research.

Food consumption expenditure in Aceh Province continued to increase every year according to a regional analysis of 23 cities/regencies in Aceh Province, following the method used by Larson (1998) to study consumption patterns in the United States of America. The types of food were very diverse and very easy to find starting from markets, stalls, minimarkets, supermarkets and restaurants. Women's participation in the world of employment was also increasing, so there was not enough time to prepare food at home, as was also found by Ariani et al. (2018) and Onah, Horton, & Hoddinott (2021).

Table 7. Food Consumption Expenditure by City/Regency, 2018-2023

City/Regency	2018	2019	2020	2021	2022*	2023*	RMSE	SMAPE
	..... Rupiah/capita.week							
Simeulue	45,460	53,205	46,259	226,082	248,246	305,426	61.038	0.48
Aceh Singkil	68,390	53,939	53,482	273,463	296,041	362,290	80.873	0.55
Aceh Selatan	63,963	66,389	76,772	345,322	385,729	476,653	92.252	0.50
Aceh Tenggara	69,688	57,400	60,133	285,837	311,556	381,514	82.057	0.53
Aceh Timur	80,464	70,558	85,336	371,576	412,028	506,818	101.803	0.51
Aceh Tengah	68,530	82,882	98,210	426,632	481,507	596,996	109.393	0.48
Aceh Barat	74,033	100,117	113,469	526,271	595,128	740,273	135.638	0.49
Aceh Besar	100,716	95,398	93,818	466,202	510,928	628,245	131.393	0.52
Pidie	87,668	80,293	93,269	447,674	496,806	613,481	124.871	0.53
Bireuen	76,658	83,152	83,034	438,598	486,196	602,077	122.094	0.53
Aceh Utara	58,373	69,419	68,968	307,076	341,180	420,555	79.932	0.46
Aceh Barat Daya	67,700	71,263	82,777	345,776	386,465	476,377	89.923	0.47
Gayo Lues	63,008	83,465	82,550	435,287	487,163	605,825	117.314	0.51
Aceh Tamiang	53,568	59,882	55,236	286,310	315,664	389,778	79.090	0.51
Nagan Raya	64,020	60,892	85,831	422,777	477,334	594,323	116.918	0.56
Aceh Jaya	79,632	81,620	87,405	448,633	498,342	617,066	124.955	0.53
Bener Meriah	73,481	102,817	93,606	434,572	483,916	598,089	111.539	0.45
Pidie Jaya	105,017	99,121	130,798	524,274	588,480	725,455	137.083	0.48
Banda Aceh	181,667	198,606	185,714	927,591	1021,664	1259,453	254.695	0.50
Sabang	121,348	139,918	151,221	658,425	735,550	908,022	170.774	0.47
Langsa	110,059	106,238	109,471	530,252	584,147	719,309	147.531	0.51
Lhokseumawe	85,272	114,263	104,973	523,184	582,206	721,030	138.473	0.48
Subulussalam	50,079	52,573	53,982	255,952	283,312	349,372	69.589	0.50

*Forecasting calculation

Table 8. Food Consumption Expenditure by Region, 2018-2023

Region	2018	2019	2020	2021	2022*	2023*	RMSE	SMAPE
	..... Rupiah/capita.week							
East	82,135	85,366	91,386	428,618	475,839	587,313	116223.71	0.50
Center	134,577	144,641	143,584	684,073	756,047	931,907	185600.24	0.49
Capital and Nearby	70,566	81,033	83,983	382,347	425,66	525,534	100840.00	0.48
South-West	63,654	66,962	73,886	356,929	397,734	492,201	97259.84	0.52

*forecasting calculation

At a low-income level, consumption expenditure is generally used to spend on basic needs. Food consumption is the most important factor because food is the main thing in survival. Then the diversity of consumption depends on the level of household income. Different income levels will result in different types of consumption levels. Based on the 2018-2022 BPS monthly data (Table 7), the forecasting results show that in 2023 the consumption expenditure of the Acehnese people will increase, meaning that in 2023 people will spend more money to buy the food they want. In the Southwest region the average consumption expenditure will be 492,201 rupiah per capita per week, East region 587,313 rupiah per capita per week, Eastern Region 931,907 rupiah per capita per week and the capital city area 525,534 rupiah per capita per week (Table 8). From the four regions, it is seen that the highest consumption expenditure for 2023 will happen in the Central region. The amount of consumption expenditure is also determined by income. An increase in household income will encourage households to consume so that consumption expenditure will increase (Sugiarto & Wibowo, 2020).

The results of forecasting indicate that food consumption in the future tends to increase. The economic turmoil caused by the Covid-19 pandemic is at least a trigger for consumption, especially food, both in the form of foods and drinks. It is estimated that the highest consumption will still be dominated by Banda Aceh City, followed by Sabang City, then West Aceh, Pidie Jaya and Langsa City. The growing culinary sector in this place is one indicator of the high consumption in the city/regency. In other words, the stretching of the trade sector, especially food and beverage providers, is a driving factor for increasing consumption. Various food and beverage alternatives are an attraction to spend their income for consumption.

Another driving factor in consumption is mainly income. The development of the trade sector indicates the running economic activities, especially the creative and culinary industries as a source of community livelihood in the aggregate. In addition, the presence of large industries also affects the increase in consumption. For example, in mining industry in West Aceh, increasing activities in the oil palm plantation sector are the driving factors of the growing food and beverage consumption in this area.

The level of consumption of the people of Aceh Province will increase differently in 2023. The highest level of consumption will be in Banda Aceh City, as many as 1,259,453 rupiah per capita per week. This increase in consumption occurs because Banda Aceh City is the center of Aceh Province. This city is also visited by many people from outside the region, similar to city of Sabang, which will also experience the second largest increase in consumption in 2023, i.e., 908.022 rupiah per capita per week. Not only Banda Aceh and Sabang, West Aceh Regency also faces an increase in consumption where the total consumption expenditure of the people of West Aceh in 2023 will be 740,273 rupiah per capita per week. It is followed by Pidie Jaya Regency, with a consumption increase into 725,455 rupiah per capita per week. In addition, the city of Lhokseumawe experiences an increase in consumption up to 721,030 rupiah per capita per week and Langsa City up to 719,309 rupiah per capita per week.

The least increase in consumption in Aceh Province in 2023 will be experienced by Simeulue Regency, as few as 305.426 rupiah per capita per week, then Subulussalam city with 349,372 rupiah per capita per week and Aceh Singkil Regency with 362,290 rupiah per capita per week. Obviously, the large or small increase in the level of consumption is based on the increase in the population, income of each household, and the price of the goods. When the price of goods increases, people will reduce their level of consumption due to the inability to buy. But, if the income of the community increases, the community will increase their consumption. Therefore, the level of access to consumption from the community will determine the level of welfare of the city/regency.

Research Implication

This study uses a simple dynamic model approach to see trends in food consumption spending in the short and long term and is combined with panel data in cities/regencies in Aceh province. This simple method needs to be followed up with complex dynamic methods while at the same time forecasting can be done in the short and long term. Further time series models need to be carried out in explaining the phenomenon of consumption expenditure in Indonesia and specifically in Aceh Province. The implication of the results of this research is a policy brief to the government through formulating a development plan with a growth-based food security strategy to spur increased income distribution and equity. This strategy begins with the empowerment of women, which in the long term will have a greater influence in contributing to household income.

In the results of this study, the contribution of women in household income turns out to have a significant effect but contradicts the theory of income and consumption. It can be explained that there are cultural factors as found by the role of family, women, culture and their impact on food security (Akhter et al., 2022; Elena, Cockx & Swinnen, 2018; Onah et al., 2021). Human cultural interactions have an impact on food security where the household decisions affect consumption behavior and food access. Women make a significant contribution in increasing household income, but the final decision in the household in consuming is determined in the family. Consumption patterns and eating patterns, for example, are one of the important objects in household decisions. In line with this argument, although women's income increase, the decision on consumption behavior rests with the family. In addition, consumption theory can explain how saving behavior will be formed. Family savings are part of the income that is not consumed. In contrast, culture and decisions in the household can also have a negative impact, especially on patriarchal culture where the dominance of men in affecting decisions in the household has an impact on women's empowerment and family income (Akhter et al., 2022; Tohani, 2022). Hence, it can be concluded that the strategy of empowering women is through the integration of activities in agriculture, both production and marketing policies. Input subsidy policies, access to agricultural credit and land expansion are integrated with women's capacity training in getting opportunities from these policies in Aceh Province.

In addition to culture, government policies also affect food security, especially in production factors such as land access, fertilizer and seed subsidies, expansion of market access, and government investment (Souratié et al., 2019; Sutrisno, 2019). The study of Souratié et al. (2019) shows that government intervention affects food security and income. More interestingly, it has an impact on increasing women's income in the agricultural sector. In another study, market expansion of government policies to improve infrastructure also contributes to increasing food security and women's participation and involvement in commodity marketing. The involvement of women in working world can have a positive impact on the family, especially in terms of income. In Theys' (2018) study, women's empowerment can have important implications in addressing domestic problems. This study also discusses promoting women's empowerment as the best way or solution to improve the quality of life for at-risk households by consuming animal source foods. With the improvement of a healthy diet, it is likely to be able to encourage women's participation in making decisions related to food expenditure. Healthy diet that is applied by every household can have the advantage of the family itself from the aspect of health. Women's empowerment is a path from agriculture to improving child nutrition, where women can access and control livestock as agricultural assets, since producing livestock can build and contribute as a way out of poverty (Chen et al., 2021). Women who earn more can provide flexibility in making decisions related to household expenses to ensure better and healthier family health. Within a family, the health of a child must be considered, where the child is a family asset. Another way to improve children's nutrition and health is to increase financial capital for vulnerable communities by increasing women's participation in savings and loans (Mbiro & Ndlovu, 2021). The existence of this village savings and loans can contribute to an increase in scores for food consumption and food diversity for children. Not only women's participation, village savings and loans can also have a positive influence on children's health and nutritional diversity, which contributes to the achievement of sustainable development goals. However, according to the study of Akhter et al. (2022), although the women have access to financial resources obtained from their job, many of them think that everything related to household expenses or food consumed is decided by men (husband). Therefore,

we can see that for the large part of the household, the regulation of all aspects of expenditure no longer come from women but men. This means that the role of a woman related to the expenditure and selection of food menus that will be consumed every day is limited. In fact, those who have to decide regarding expenses and also consumption from the household is women because they know the healthy food that will be given for consumption by their families.

Another view of women's income and its negative effect is Engel's theory, where in certain types of consumption of goods, changes in income will have a negative effect on consumption (Merella, 2006). The increase in women's income in Aceh Province food consumption lowered, and the nature of the goods consumed based on research estimate data is inferior goods, which is also the case in Indonesia as a whole (Ishida, Law, & Aita, 2003; Skoufias, 2003). This indicates that consumption patterns in Aceh province are still dominated by low-quality food.

CONCLUSION AND SUGGESTION

Random Effect is the model chosen to be used in analysing food consumption expenditure and its relation to the contribution of women's income. In the short term, women's income has a significant positive effect on food consumption. Then the contribution of women's income in the long term in the REM model shows consistency and theoretical significance of the partial adjustment mechanism and women's income in the long run is more elastic but inversely proportional to the level of consumption. That is, with an increase in income, the change is more than 30%, the level of consumption for food will decrease, due to the possible low-quality food. In simple terms, women's income is not directly spent on food, it is possible that the results of this income are saved or take-home pay.

In addition, the consumption expenditure pattern of the people of Aceh Province in 2023 continues to increase, especially in the Banda Aceh City and Sabang City areas. Not only that, West Aceh Regency in 2023 will also face an increase in consumption expenditure. This means that in 2023 people will spend a lot of money to spend on their food needs. Obviously, this large amount of consumption expenditure is based on increasing income and population in several the next year. Fluctuations in expenditure consumption indicate the level of welfare of regency or city in Aceh Province. The more consumption is done, the more prosperous the community, whereas less consumption indicate the welfare of the community.

The recommendation that can be given from the results of this study is a food security development strategy based on women's empowerment. Empowering women through investment, especially in the culinary field, to meet the increasing food consumption needs and increase job opportunities in Aceh Province. Research related to consumption is still limited, and using simple dynamic models. In the future, what might be done is developing forecasting techniques using more complex dynamic models to explain more complex consumption phenomena.

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Act-belong-commit: Developing strategic plan of sustainable tourism village in Indonesia through NVivo qualitative analysis

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ABSTRACT

Planning is essential in developing a sustainable tourism destination. Good planning will explain the direction, facilitate performance evaluation and minimize negative impacts. This study aims to explore the perspectives of the local community, tourism village developers, policymakers, and experts as a strategic basis for an agriculture-culturally based tourism village development plan. This qualitative research was conducted in 2019-2022, using a case study strategy and an abductive approach. Data were collected through repeated observations, in-depth interviews, a qualitative survey, and literature studies from scientific book, journals, and mass media (websites). Data analysis was carried out qualitatively using CAQDAS NVivo. The results of the study outline the priority strategies for short, medium, and long-term programs in the development of tourism in Cimande Village. This study contributes to other researchers regarding other vital components that must be considered in developing tourism in rural areas, especially those based on culture, namely the commitment and participation of the local community and the local customary system.

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INTRODUCTION

The development of rural tourism is one form of diversification of tourism products. According to Lane, rural tourism is an alternative tourism that can provide a different experience, not only enjoying beautiful landscapes and typical rural scenery but also learning about the typical lifestyle of its residents (Andrianto & Sugiama, 2016). The uniqueness of rural tourism in Indonesia lies not only in its natural attractions and activities but also in its unique local cultural wisdom.

Inskeep (1991) stated that rural tourism is an activity of travelling and living in the village or around the town, interested in learning everything about the village, both local culture, daily life, customs, and often even being involved in an activity in the village (Soeswoyo et al., 2021). As mentioned by Chuang, rural tourism can also be said to be a geographical environment where tourism activities take place and original characteristics in the form of traditional culture, agricultural culture, inland landscapes and the simple lifestyle of local people (Raharjana, 2012). The World Tourism Organization (WTO) explained that rural tourism is where rural culture is a critical component of tourist recreational products (Dorobantu et al., 2013). Rural tourism can be

developed based on natural and cultural conservation (NCC) to be an innovative way to build tourism, a source of income, and means to reduce poverty (Andrianto & Sugiama, 2016; Davardoust & Karahan, 2021; Šťastná et al., 2020).

Rural tourism development needs to be planned from the beginning so that all development programs can be organized and formed as expected, producing results and providing benefits for all stakeholders. If rural tourism is not based on careful planning, various negative things will occur. They can threaten the sustainability of resources in the rural area itself (Andrianto & Sugiama, 2016; Nugroho et al., 2018; Sunarjaya et al., 2018). Several impacts that can occur due to the absence of good planning are (i) damage or permanent changes to the physical environment, historical/cultural areas and natural resources; (ii) changes in social aspects of society, (iii) too many people and congestion, (iv) pollution, and (v) traffic problems. The World Tourism Organization (WTO) revealed that sustainable tourism development pays attention to policies on three things, namely sustainable nature, socio-cultural, and economic (Gunawan, 2016). Soeswoyo (2016) also explained that creating a sustainable destination needs attractions, facilities, services, infrastructure and tourist satisfaction, while also controlling its impact on the natural, cultural, social, and economic environment. Local community participation plays a vital role as a provider of social capital in developing cultural tourism in rural areas (Belij et al., 2014; Garau, 2015). For this reason, concern, roles and support from all parties are needed to make the tourism development more successful and sustainable (Davardoust & Karahan, 2021). According to Andrianto & Sugiama (2016), rural tourism development can be integrated and effective based on four pillars (quadro helix): government, local communities, private sector, and academia.

One type of tourism that utilizes cultural elements as its primary object is culture-based tourism. Cultural tourism is unique because there are so many individual cultural elements from an area that can attract tourist arrivals, such as community traditions, history of the site, arts, crafts, architectural forms and characteristics, language, local clothing, local community activities, festivals, and cultural activities (Inskeep, 1991). The uniqueness of an area's local wisdom encourages tourists to know the artistic elements and even learn about them. Šťastná et al. (2020) argued that cultural tourism is an essential complementary activity that can provide economic and non-economic benefits even though, according to him, it is not the primary driver of village development. However, according to Sunarjaya et al. (2018), local culture is one of the crucial components of a tourist village.

According to Sumarwoto in Pujianto (2015), agrotourism is a type of tourism that utilizes natural attractions, especially the potential of agricultural commodities, including food crops, plantations, livestock, fisheries, and forestry. However, to develop agrotourism, it is necessary to pay attention to various aspects such as the surrounding natural environment, geographical location, type of product, and the facilities and infrastructure of the agro-potential. If appropriately developed, agro-based tourism villages will have a positive impact on the results of the agro-village, and will increase the welfare and capacity of the community.

Tourism components are essential components that are needed in the development of a tourist destination. Main components of tourism development are the 4As: Attraction, Accessibility, Amenities and Ancillary Services (Andrianto and Sugiama, 2016; Cooper in Wiweka and Arcana, 2019). According to Inskeep (1991), the components of sustainable tourism planning are grouped into nine parts, namely (i) tour attractions and activities, i.e. all forms of tourist attraction, both natural, cultural, and other attractions, as well as various tourist activities, (ii) accommodation or lodging facilities, (iii) other tourist facilities & services, (iv) facilities and transportation services, (v) infrastructure such as clean water, electricity, telecommunications, and sewerage, (vi) institutional elements, such as human resource management programs, promotion and marketing strategies, organizational management structures, tourism regulations and provisions, investment policies, development programs and monitoring the impact, (vii) natural and socio-economic environment, (viii) domestic and international tourists, and (ix) benefits for the local community. Sustainable development of tourist destinations focuses on increasing job opportunities, income, and welfare of the local community. Also, it considers the value of the sustainability of the natural, economic, social, and cultural environment.

Management of a tourism destination involves setting goals, making choices of action plans, and

balancing all aspects of performance to achieve the same vision by paying attention to available resources (Arbogast et al., 2017).

The development of rural tourism is also one of the Indonesian government's programs to accelerate equitable growth and help improve the welfare of the local population. According to Davardoust & Karahan (2021), developing tourism in rural areas and impacting the village economy can also maintain the conservation of nature and culture. According to Gunawan (2016), the concept of national economic independence rests on the Nawacita of the President of the Republic of Indonesia, that is achieving financial independence by moving strategic sectors of the domestic economy. Agriculture and tourism are strategic sectors capable of sustaining life and driving the national economy that takes root and becomes a culture in the community. In Indonesia, the development of tourist villages is mainly facilitated by the state, while the community tends to be passive. As a result, the local capacity to respond to state-sponsored innovations through developing tourist villages still faces several crucial problems (Raharjana, 2012). In Indonesia, many people still do not understand tourism development in rural areas. In her research, Muresan et al. (2016) revealed that rural communities in the Nord-Vest region in Romania view tourism as a factor in village development. Many experts research the importance of local communities' role and participation in rural tourism development (Belij et al., 2014; Davardoust & Karahan, 2021; Fong et al., 2017; Garau, 2015).

For this reason, tourism development should be appropriately organized and planned to form a sustainable tourism destination that does not negatively impact the natural, social, cultural and economic environment. A tourist destination can experience delays in its development if thorough planning is not carried out at the beginning (Sunarjaya et al., 2018). The existence of good planning in the development of tourist villages will determine a clear direction in the stages so that it can run more effectively, increase benefits for the community, and create a balance with the environment (Sugiarti, Aliyah & Yudana, 2016). In addition, developing a tourist destination in rural areas will open new businesses that can be a source of additional income (Andrianto & Sugiama, 2016; Nooripoor et al., 2021).

Cimande Village is located in Bogor Regency, West Java Province, Indonesia. The Cimande tourist village's establishment was initiated by the Cimande Village Head, who saw a lot of tourism potential in the area. Besides its potential for unique rural nature tourism, agricultural landscapes, plantations and mountains, Cimande Village is also very famous for its exceptional culture. The martial art of Pencak silat Cimande is one of Indonesia's oldest and largest martial arts schools (Fuad, 2022). Cimande Pencak silat has several unique features regarding movement, philosophy and special provisions that must be adhered to. Since 2019, UNESCO has designated pencak silat as a non-physical Indonesian cultural heritage and has become better known to the world since it was established as one of the official branches of world-class sports competitions (Kusumo & Lemmy, 2021). Cimande village is also known for its traditional art of fracture treatment, 'Urut Cimande', which uses a special oil named 'balur Cimande', believed by many to be an effective and affordable alternative medicine. According to one resident, on average, as many as 150 patients visit the village in one month.

Cimande Tourism Village was formed in 2015, and currently, there is an arrangement of tourism village administrators. But, so far, it seems slow to develop. Based on this description, it is necessary to conduct a study that can explore views from various sources as a basis for planning. Many qualitative studies on tourism development in rural areas examine the opinions of the community, government, managers and visitors. The novelty of this research is the exploration of in-depth views including ten experts and the use of NVivo qualitative data analysis, which is still rarely done by other researchers. This study aims to determine the right strategy for tourism development in Cimande Village based on the community's perspective, tourism village managers, policymakers and experts.

RESEARCH METHOD

This exploratory study employs a qualitative method with a case study strategy in Cimande Tarikolot Village which is well known in Indonesia because of its unique culture of the pencak silat martial art, the art of traditional healing of fractures, and other cultural traditions. Cimande Village is located in Caringin District, Bogor Regency, West Java Province. The case study strategy was considered the most suitable for this research because, according to Yin, the case study strategy is an in-depth

investigation of a topic or phenomenon in a real-life setting (Saunders, Lewi, & Thornhill, 2019).

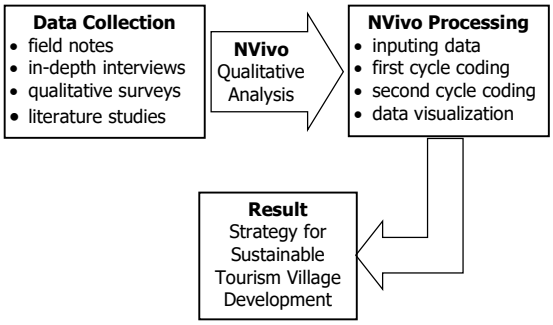

Figure 1. Research flow chart

This research was first conducted in mid-2019. It encountered several obstacles in data collection due to the COVID-19 pandemic from 2020 to early 2022. First, research data were collected through direct observation technique to the village, which were carried out four times by making several field notes containing photo documentation, research note, and face-to-face interviews with village communities. The second data collection technique was in-depth interviews with key informants from the village government, local government, and tourist village managers, using tools of semi-structured interview guides and recording devices. Given the high spread of the COVID-19 virus at the time of the research, in-depth interviews were conducted by telephone with a duration of 48 to 87 minutes. A telephone interview is one of the data collection techniques that can be done in certain situations (Cresswell, 2015). The third data collection technique was qualitative survey containing open-ended questions in the form of a google form, which were distributed online to an expert group of 10 academics from 3 tourism institutions in Bogor and Jakarta. The sample for the expert qualitative survey respondents was determined purposively with special criteria, i.e. those who had visited Cimande Village at least three times so that they were considered sufficient to understand the conditions in the village. Other research data were from books, scientific literature, online newspapers, and websites.

The research procedure was data collection and grouping, data reduction, data processing and analysis, and then conclusion. Data analysis was performed using NVivo's computer-assisted qualitative data analysis software (CAQDAS). Research data's level of trust or validity was confirmed through a data triangulation process.

The NVivo data processing was carried out by inputting data, first cycle coding, second cycle coding, data visualization, and writing findings (Figure 1). All data were grouped based on their source at the input stage, and the text was adjusted to N-Vivo format to make coding accessible. The first stage of the coding cycle was done by doing a text search in the form of Word cloud and Word tree, then identifying Parent Nodes, Child Nodes and Cases. Finally, the second cycle, which was the coding stage, analyses matrix coding and project maps (Miles et al., 2014).

RESULT AND DISCUSSION

Cimande Tourism Village Overview

Geographically, Cimande Village is included in the administrative area of Caringin District, Bogor Regency, West Java Province. Ciderum Village borders this village in the North, Pancawati Village in the West, and Lemah Duhur Village in the South. The village is flanked by two mountains, Mount Pangrango and Mount Salak, so it has a beautiful landscape with fresh, clean air. Cimande Village has an area of 252 hectares, with a total population of 6,800.

The residents are known to be religious. There are many prayer rooms and *surau* available to support spiritual activities. The education level of the majority of the Cimande village residents is elementary, junior high and high school graduates. The local people's primary income is from farming, gardening, and the traditional fracture treatment known as 'Urut Cimande'. Some residents also trade and become farm laborers and employees.

The expertise of traditional treatment of fractures is owned by most of the village's natives, who also practice the martial art of pencak silat Cimande. Cimande Pencak Silat is believed to be one of the oldest martial art schools in Indonesia. According to one of the Cimande silat elders, while studying, a silat fighter must undergo several conditions, including accepting *ta'leq* (oath) and *peureuh* (drops of water in the eye accompanied by prayer), moves, and a Cimandean salute. In addition, Taleq Cimande is an oath or code of ethics that must be adhered to, which essentially contains a message to respect teachers and foster diversity, politeness, humility, hospitality, and mutual respect for fellow human beings. The martial art of pencak silat Cimande has been taught early, and

training is routinely carried out at several silat hermitages in the village.

Cimande Village is also known to have Kasepuhan customs which maintain several religious traditions such as the *Ngabungbang*, which is held every year on the 14th and 15th day of the month of Maulud (Islamic calendar). The descendants of Kasepuhan Cimande and practitioners of Cimande teachings gather to celebrate. Ngabungbang comes from the word *bungbang*, meaning throwing away or cleaning. If interpreted culturally, Ngabungbang is a holy bath to unite creativity, taste, and intention to eliminate all lousy behaviour physically and mentally. The unique rituals include doing pilgrimages to several sacred tombs, connecting with Kasepuhan Cimande at the Tarikolot Pendopo, collecting and cleaning sacred heirlooms in the form of relics of Cimande elders, and preserving Cimande martial arts. One of the legendary holy heritage relics is Gobang Karancang which is one meter long, one span wide, and inscribed with the Qur'an 30 juz from the hilt to the top.

Figure 2. Regeneration of Cimande pencak silat

Figure 3. '*Parebut Seeng*' pencak silat martial art (A-B) and '*Urut Cimande*' (C) (Cimande, 2022)

NVivo Qualitative Data Analysis

Before qualitative data analysis, all data were inputted and prepared for easy coding using NVivo software. Figure 4 below depicts a project map, one of the results of NVivo's analysis which shows the triangulation of data sources from observation's field notes, qualitative surveys, and in-depth interviews.

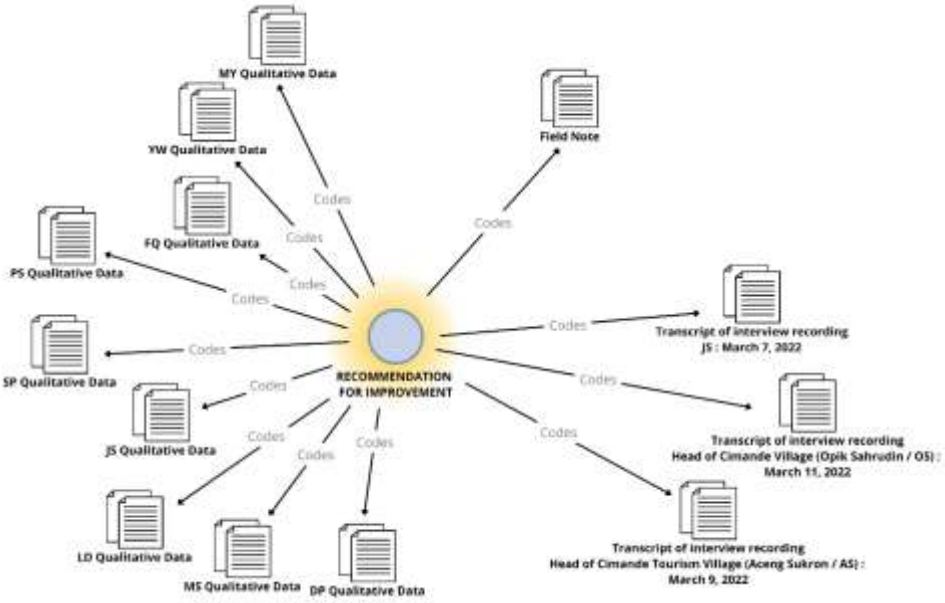

Figure 4. Data triangulation in project map NVivo analysis result

Figure 5. Word cloud result

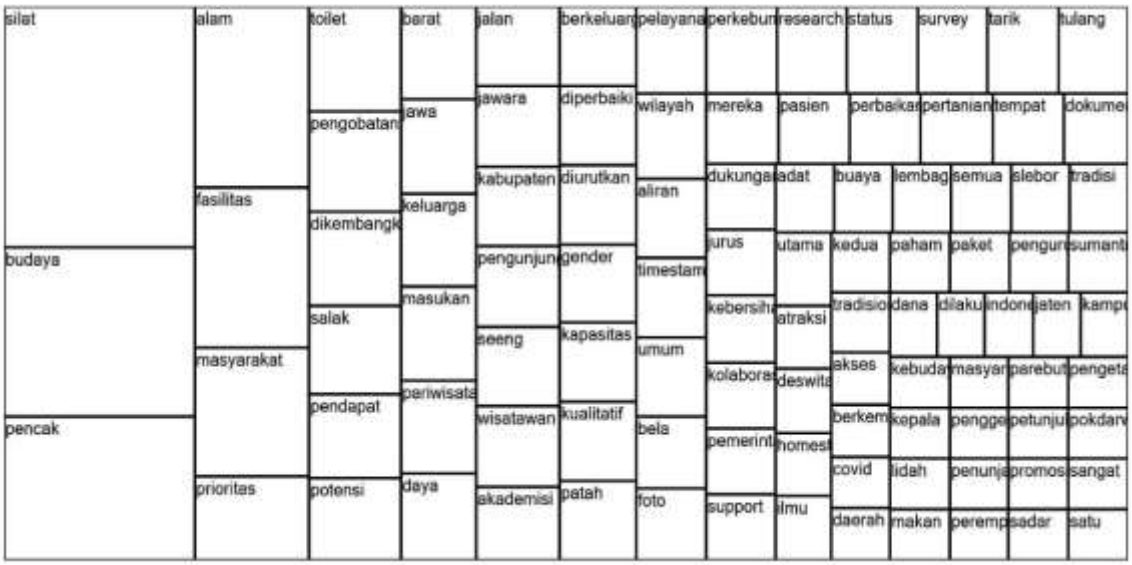

Figure 6. Tree map – NVivo qualitative analysis result

All data were processed with a word frequency query to help quickly search for relevant words in the coding process in this study and to produce the most frequently referenced words in the form of a word cloud and tree map shown in Figures 5 and 6. The results of the Word Cloud show some words that appear more prominent, indicating that these words are more frequently referenced, such as the words culture (*budaya*), pencak silat, community (*masyarakat*), nature (*alam*), and facilities (*fasilitas*).

The results of the research tree map in Figure 6 show several relevant words in the larger column, including Pencak Silat, culture, society, nature, facilities, toilets, and barking. Some appropriate words were then used to facilitate writing several Nodes in the coding process.

Priority Strategy

All data from various sources were then processed based on Nodes and Cases in the first and the second cycle coding stage to answer the research questions in this study. All data sourced from field notes from observations, in-depth interviews with the community, tourism village managers, village governments, and local governments, and results from qualitative surveys from experts were then processed and analyzed.

Table 1. Matrix Coding NVivo Analysis Result

Coding/Node	Short-Term	Middle-term	Long-Term
	..... %		
Accommodation	4.02	0.00	0.00
Institutional elements	26.40	0.00	0.00
Other Infrastructure	0.00	7.84	0.00
Other tourist facilities & services	0.00	9.00	0.00
Tourist attraction	7.69	11.76	10.50
Transportation service & facilities	0.00	11.76	23.16

Priority Strategy coding and Tourism Component coding were used to see the connection between the two concepts. The NVivo Matrix coding analysis results in Table 1 show that the most widely referenced tourism components for short-term strategies were institutional elements, tourist attraction, and accommodation. Table 1 is presented to show different elements of tourist facilities ranging from short, middle, and long-term strategies. The results of the Coding matrix for the medium-term plan are components of transportation services & facilities, tourist attractions, other tourist facilities & services, and other infrastructures. Tourism development for the Cimande Village long-term strategy is a component of transportation services & facilities and tourist attractions.

Short Term Strategy

The short-term strategic program for the development of the Cimande Tourism Village based on NVivo's qualitative analysis shows that the nodes that were sequentially most coded were (i) institutional elements, (ii) tourist attractions, and (iii) accommodation. The results of the matrix coding in Table 1 were processed from statements from various sources collected in this study. The main priority of the short-term strategy is the institutional elements component. It is a program that includes the consolidation and internal participation of rural communities, increasing knowledge and capacity of community/human resources on Tourism and Tourism Awareness, and developing regulations and provisions related to tourism in Cimande village. The program was identified from the results of the NVivo coding worksheet on the short-term strategy program in Appendix (Figure A1) and some quotation statements.

Relevant quotation statements to short term strategy:

> *"….people's understanding of human resources has begun to open, but an understanding must be formulated about the Cimande tradition."* - In-depth interview
>
> *"…changed the paradigm of people's mindset. Together with our tourism village colleagues and the Youth Organization, we have moved to explain and straighten that tourism village does not mean negative but can help improve the community's economy, and we are starting to accept it".* - In-depth interview
>
> *"There needs to be a commitment from stakeholders, a commitment to build a tourist village... because the main driving factor for development is human resources so that when human resources can commit, coordinate with each other to achieve the same goals, planning, strategies can be formulated and appropriately implemented through evaluation and monitoring regularly"* - Survey
>
> *"…but don't know how to develop it yet. Our human resources knowledge about tourism is very little."* - Field notes

Cimande Tourism Village is one of Indonesia's villages that still adhere to various traditions and customs. The name Cimande is an abbreviation of the Sundanese term *Ciri Iman Anu Hade*, which means a village that has a community of good character and behaviour toward fellow humans and their creators. Cimande Village still preserves various religious traditions, such as the Ngabungbang, which is held annually and is usually visited by thousands of visitors who still have kinship or emotional ties with Cimande Village. The famous Cimande Pencak Silat martial art is included in Indonesia's three largest pencak silat schools (Fuad, 2022). To learn this martial art, all students are required to pronounce *'Taleq Cimande'* and obey it. There are many provisions and processions that must be adhered to regulate its use in goodness and further increase piety to the Creator. In the customs of Cimande Village, the Kasepuhan hierarchy, which is the traditional elders chair, is still respected. However, in the village government, Cimande is led by a village head, so sometimes, some provisions or regulations must be agreed upon by the Kasepuhan and village leaders.

From the results of observations, it was found that there were still some villagers who seemed hesitant to develop Cimande Village as a tourist destination because they were worried about some impacts that could change local cultural traditions. This reluctance needs to be studied with the community to produce the same understanding and commitment, and to formulate several provisions to control the negative impacts of tourism development related to cultural, social, economic, and environmental aspects. The effect was revealed in the research of Muresan et al. (2016), which showed that the socio-cultural, natural and economic environment can influence sustainable tourism development in rural areas. Tourism development in rural areas with natural and cultural capital is vulnerable to issues related to sustainable development (Nagy & Segui, 2020). The role of local community consolidation and commitment is also discussed in Arbogast et al. (2017), who revealed that building a vision, identity, and coordinating joint activities is one of the challenges in rural tourism development. The importance of the host community's role in the planning and development of tourist destinations was also expressed by Hall & Williams (2020). Local communities also need to gain additional knowledge about village tourism to increase their understanding and be motivated to advance the village further and preserve culture. These findings are also in line with Tiberghien (2019), who stated that local community empowerment is one of the critical factors in planning and managing eco-cultural tourist destinations.

The following short-term strategic program is related to attraction, including developing cultural and agricultural interests. Cultural involvement in tourism

is growing recently (Liang et al., 2021). The martial arts culture of Cimande Pencak Silat and the traditional healing art of Cimande fracture treatment are well known even outside the city of Bogor and abroad. They are generally known from the recommendations of relatives or friends who have been to Cimande. Several visitors who came from abroad would study the Cimande Pencak Silat martial art, who later opened a branch of a silat school in their country. Hence, the Indonesian martial art of pencak silat has become widely known worldwide (Bambani, 2022; Kemlu.go.id, 2020). The art of Cimande traditional treatment for fractures is also well-known because it is visited by patients from various cities almost daily. It is believed to be an alternative treatment that tends to heal faster with relatively affordable costs based on the sincerity of the patient. Virtually all the natives of Cimande Village who master the martial art of pencak silat automatically master the art of traditional fractures treatment.

Not all people there are able and allowed to make the special massage oil for this treatment, known as Balur Cimande. Special provisions based on the Kasepuhan hierarchy regulate this and people are prohibited from setting treatment fees for patients who have been cured. Now there are many places for treatment of fractures outside Cimande Village that use the Cimande brand. It's a shame that some of them turn out to be not native to the art of Cimande's medical treatment and cannot be said to have proper knowledge of the treatment. Hence, the results are not as good as expected. UNESCO provisions in 2019 stipulated the martial art of pencak silat as an intangible Indonesian cultural heritage. It makes the art of pencak silat Cimande and the art of traditional Cimande massage parts of local culture with unique and competitive advantage compared to other tourist destinations. As a part of Indonesian culture, Pencak silat has essential values such as friendship, mutual respect, and promoting social cohesion, so it is considered capable of becoming an identity and a unifying tool for the nation (Kusumo & Lemmy, 2021).

For this reason, it is necessary to maintain its sustainability through the process of regeneration and cultural conservation. This artistic potential can also be developed in educational, health, or other kinds of focused tourism.

Meanwhile, there are two tourist attractions in the Salak plantations in Sleman Bogor (Slebor) and Aloe Vera plantations. Salak Slebor in Cimande Village has a distinctive, fresher but still sweet taste. Aloe Vera Plantation in Cimande Village is a variety derived from superior seeds from Kalimantan, which produce lush and large plants. and has the potential to become one of the attractions for agricultural or educational tourism.

The third priority of the short-term program is accommodation for homestay development. In the previous description, it is explained that many visitors want to learn Cimande Pencak silat and to treat broken bones. All patients with fractures come with their family or friends. Often, they are confused about finding a place to stay because their location is far from the site of origin or the stage of treatment that requires rest for the patient. Developing people's houses as homestays is a solution for medical patients' families, which also provides economic benefits for residents. However, in its development, it is necessary to provide additional knowledge and skills about homestay management so that the results can be optimal. Many studies have explained the importance of developing homestays in tourist villages and even turning them into a business sector in developing countries (Adhikari, 2020; Hia et al., 2020).

Another component that is quite widely referenced for short-term programs is tourist facilities, especially the provision of adequate public toilets. Several opinions on the results of in-depth interviews, surveys, and field notes express the results of the subsequent short-term program priorities, namely the development of components of cultural and agricultural attractiveness and components of homestay accommodation.

Statements during research related to attraction & accommodation components:

> *"…the most important thing is that cultural packaging is packaged into special interest tours. (For example,) tour packages that are either scheduled or based on orders, which highlight the culture but still follow village regulations or do not violate taboos. Public and tourists must be educated to highlight cultural advantages. The community's internal improvement will be understanding toward cultural tourism that maintains traditions and taboos."* - In-depth interview
>
> *"……..it is important to preserve and maintain the well-known Cimande Pencak Silat culture…."* - Survey
>
> *"The main priority is increasing agricultural education tourism and increasing the standard of homestay for the patient's family. So even though*

it is used for the patient's family, I want more good standardization. We still need training for public awareness-raising, tour guides, etc." - In-depth Interview

".....the participation of all levels of society, traditional elders, village institutions and village leaders, as well as increasing the knowledge and skills of human resources and homestays." - Survey

"There needs to be adequate public toilets for tourists and clear directions." - Survey

Middle Term Strategy

The Cimande Tourism Village development program for the medium term includes (i) attractions, (ii) transportation, and (iii) tourist facilities & other infrastructures. This conclusion can be seen from the number of Nodes referenced in Appendix (Figure A2) and is supported by several statements from the results of in-depth interviews and qualitative surveys.

Relevant quotation on middle-term strategy

"Development of natural attractions, improvement of food facilities, and sanitation and disposal infrastructure". - In-depth interview

"Road access, natural tourism development, agro- and selfie spots, rest area, and eating and drinking facilities. - Survey

"Development of natural attractions, improvement of other facilities." - In-depth interview

"It is necessary to develop tourism programs.". - Survey

"In the 2nd year, (we will) implement Samisade (One Billion One Village) program for road and infrastructure repairs, God willing. In 2023, it will be directed for road repairs." - In-depth interview

The study results show that the medium-term strategic plans tend to be directed at exploring and developing the potential for natural attractions and continuing to develop cultural attractions. From the results of field observations, it was found that Cimande Village has several potential natural attractions. These attractions include waterfalls or Curugs, rivers whose water is relatively straightforward, natural scenery with the backdrop of Mount Salak and Mount Pangrango, and sparkling urban lights at night that are interesting. However, these innate potentials have not been developed and are not widely known to the public. The various potential cultural, natural, and agricultural attractions of Cimande Village can also be developed into exciting tourist activities. The activities include cycling in the village, trekking, and tourism programs that combine cultural and educational activities such as learning programs for Pencak silat, learning about plantations, agriculture, etc.

Another Cimande tourism village development plan is the transportation services and facilities component. Currently, to get to Cimande Village from the Caringin highway, there are only narrow and inadequate roads connecting various tourist attractions in the village area. Directions to the village and the region must also be appropriately managed to make it easier for visitors. Sign currently only exists in 1 point location, so it is not yet adequate to function well.

Another development plan is tourist support facilities. Currently, in the area around the tourist attraction, there are no public facilities that provide local specialties and drinks where visitors can unwind while dining or enjoying the natural scenery typical of Cimande village. In the plantation area, there is already a Saung that functions as a resting place for visitors. Still, there is no signature on whether it is for aloe vera plantation visitors or for all visitors in general. Other tourist support facilities that are important are hygiene facilities and infrastructure. Clean water facilities for washing hands, public toilets, and garbage dumps are indispensable for visitors and help create a cleaner, neater, and more beautiful environment. Clean water infrastructure, cleanliness, and sewerage are also essential factors that can affect the sustainability of tourism development (Muresan et al., 2016).

Long Term Strategy

The results of NVivo's analysis for the long-term program plan for Cimande Tourism Village include (i) the development of natural and agricultural tourist attractions and (ii) other tourist support facilities. This conclusion can be seen in Appendix (Figure A3) worksheets which show the number of referenced nodes and several relevant statements from the results of in-depth interviews and qualitative surveys.

Relevant quotations on long-term strategy:

"Development of other tourist support facilities, explore natural tourist attractions." - Survey

".....infrastructure improvements such as the Cimande River rice dam can be used for trekking, canoeing." - In-depth interview

"..... later when Cimande is ready properly, it is necessary to do an integrated digital promotion as part of its marketing strategy." - Survey

The development of natural and agricultural tourist attractions is a continuation of the medium-term

program to improve its quality and be developed again continuously.

Other tourist support facilities also need to be developed because there is currently no tourist information center, tourist maps, souvenir sales places, or good communication networks. Moreover, handicraft products, food, and beverages with local characteristics as souvenirs can potentially become tourism products that attract tourists (Adikampana et al., 2019).

It is no less critical if various tourist attractions and facilities have been appropriately managed, that is by carrying out various promotional activities that are integrated internally and collaborating with local governments, tour operators, tour guide associations, and others. It is also part of the Institutional elements' component marketing program.

All planning for the Cimande Tourism Village development program, both short, medium, and long-term strategies must continue to be monitored and evaluated for improvement. For this reason, improving the human resources of rural communities cannot be separated from the support of various parties such as local governments and assistance from academics from different fields of science.

Research Implication

This study provides several implications for the literature related to social and economic development in the context of Tourism Villages. According to Muresan et al. (2016), a tourism village is built based on the commitment and agreement between various elements of society. This study supports the literature in the context of community empowerment in Cimande Village as a tourist village. This study finds an effort to respect each other and maintain unity, which is essential in developing the tourism village economy. This supports previous studies by Kusumo & Lemmy (2021) that the strong identity of a region is formed from the unity of its people, which originates from social solidarity and mutual respect for one another.

This study also emphasizes the importance of sustainable tourism development in rural areas. The results of this study indicate that a shared understanding and monitoring of the negative impacts of tourism on social, economic, cultural, and environmental aspects play a crucial role in ensuring sustainable tourism. This supports several works of literature related to sustainable tourism in rural areas, which emphasizes the vulnerability of socio-cultural, natural, and environmental in the tourism sector (Nagy & Segui, 2020). However, local communities stand as the backbone of the existence of tourism resources in rural areas. This finding is relevant and has implications for previous literature regarding the importance of involving indigenous peoples and local communities in decision-making for tourism village development (Kusumo & Lemmy, 2021; Arbogast et al., 2017).

Local community involvement is not limited to tourism sector planning. Local communities are also involved in the function of implementing and supervising tourism. This also supports previous studies where local communities who participate in developing homestays will increase the enthusiasm of the youth to build their villages, foster an entrepreneurial spirit, and impact the country's development (Adhikari, 2020; Hia et al., 2020). In this regard, local communities need training and knowledge of tourism management. This finding is in line with the findings of Hall & Williams (2020). They mention that the involvement of local communities is strongly influenced by the implementation of capacity development in the area. Therefore, some forms of capacity development that we recommend include understanding related to tourism management, knowledge related to entrepreneurship, and skills in tourism administration in the village. Sufficient knowledge related to village tourism will increase the ability of the tourism village in the future to compete and continue to exist in the existing tourism business ecosystem.

Capacity development for local communities is indeed an essential factor. However, our research findings also show the importance of strengthening infrastructure in villages to welcome incoming tourists. Furthermore, our study shows the importance of building infrastructure that conforms to national and international standards tailored to tourists' motivation. This is in line with the opinion of Tiberghien (2019), which states that in addition to the development of human resources, infrastructure resources supporting tourism also have implications for the existence of the tourism sector in the future. We provide several recommendations, especially on the construction of sanitation facilities, waste management, and clean water resources. This is also a finding from research by Muresan et al. (2016), which emphasizes

supporting infrastructure for the tourism sector to prepare a tourist village in front of its target market.

We also provide several recommendations on tourism products that tourists can offer. The cultural wealth in Cimande Village is something that can be offered. Therefore, in line with Adikampana et al. (2019), his research implies the importance of maintaining cultural resources as outlined in the sale of handicrafts, local food, and beverages to tourists. The sale of local souvenirs will raise the spirit of doing business for local people depending on their livelihoods from the informal sector. Establishing an entrepreneurial ecosystem in a tourist village will not only move the wheels of the economy in the village but also create new jobs, encourage gender equality, reduce poverty, and increase regional economic growth (Andrianto & Sugiama, 2016; Davardoust & Karahan, 2021; Šťastná et al., 2020). The literature consistently conveys that the development of tourist villages in the form of economic attention will ultimately impact the economic growth that comes from the community itself.

Finally, there are implications of this research in term of rural area development through the development of tourist villages. This research shows the very crucial position of cultural assets. Similar related components of sustainable tourism planning were found from the study by Inskeep (1991). These nine components of sustainable tourism planning will be able to be carried out comprehensively to a holistic result with the aid of an accurate strategy. This is also following the study by Šťastná et al. (2020), which stated that the formulation of a strategy for sustainable tourism in rural areas will ensure economic and non-economic benefits even though it is not the primary driver of village development.

CONCLUSION AND SUGGESTION

This research was conducted using N-Vivo qualitative analysis software. It aims to determine the strategic plan for the development of Cimande Village based on the perspectives of the local community, village government, local government, and accompanying academics, as well as those who care about the growth of tourist villages.

This research concludes that the strategic planning for the development of Cimande Tourism Village is grouped into three stages for the next 1 to 3 years: the short-term, medium-term, and long-term. Short-term development programs include (i) institutional elements, (ii) cultural and agricultural attractions, and (iii) homestays. The medium-term development programs include (i) natural attractions, agriculture, and tourism activities (ii) accessibility and facilities for eating and drinking, and resting, and (iii) tour programs. The long-term improvement programs are (i) natural and agricultural attractions and (ii) other tourist support facilities and promotional mixes.

The development of the Cimande tourist village requires commitment and support from all parties, especially the role of local communities, tourism village administrators, and village government, supported by local governments, assistance from academics of various disciplines, and collaboration with private partners. Furthermore, tourism village development needs to be well planned to be more effective and minimize all risks. It is expected to form an ideal, sustainable rural tourism destination that can benefit residents positively.

This research still has some limitations because it was conducted during the COVID-19 pandemic in Indonesia, so the data collection process could not be carried out optimally. However, other researchers can study more deeply based on tourists' perspectives using other methods. Furthermore, future researchers can also study deeper to explore the attractiveness of Cimande Pencak silat martial art based on tourists' perspectives.

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Appendix

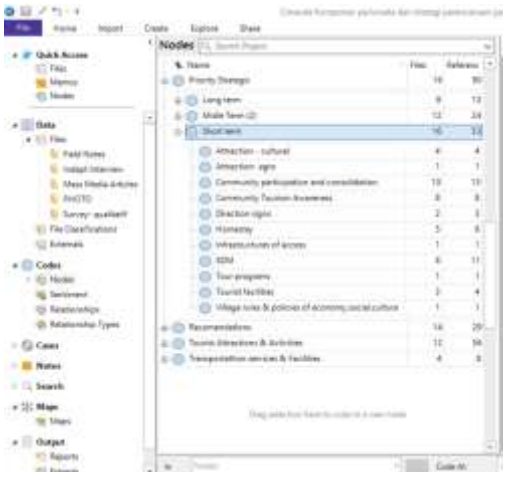

Figure A1. NVivo worksheet on short term strategy

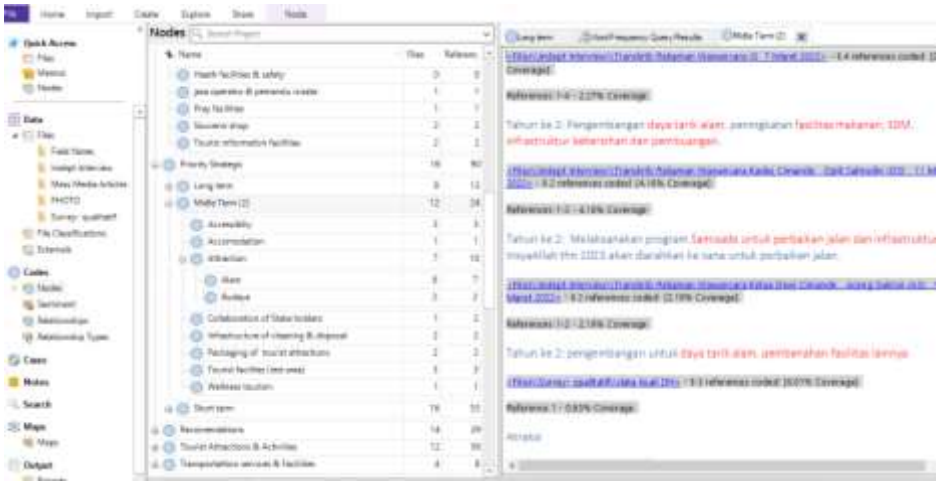

Figure A2. NVivo worksheet on middle-term strategy coding

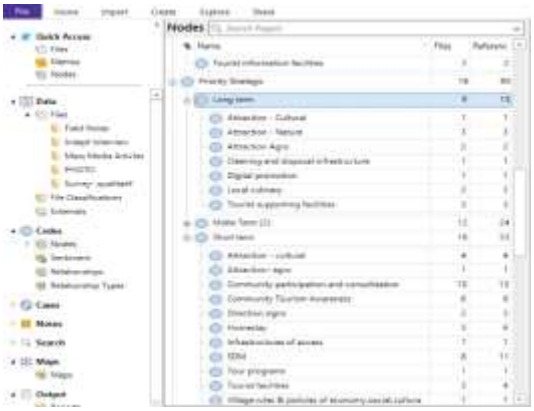

Figure A3. NVivo worksheet on long-term strategy coding

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More networks, more financial inclusion? An empirical evidence from Indonesia

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ABSTRACT

Social capital is essential in mediating financial inclusion. We employ broader horizontal and vertical social engagement of social capital such as bonding, bridging and linking. Meanwhile, financial inclusion is defined as saving ownership in a formal financial institution. Using a logistic regression model and a sample of 74,454 individual respondents from the 2018 National Socioeconomic Survey, we found that social capital is essential in promoting formal saving behavior. Among three indicators (bonding, bridging, and linking), the results show that a rise in the bridging variable was associated with a 10 per cent higher likelihood of having a formal savings, higher in magnitude than the linking variable. Bonding variable had no effect in promoting financial inclusion, but upon further observation, it was still suitable to be implemented in rural area. Our estimates justified the presence of financial information transmission among people in their respective social circles. Our findings suggest that the government should consider a financial campaign using a community-based approach to complement the current inclusion strategy.

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INTRODUCTION

Banerjee & Duflo (2007) identified information failure as one of the root problems in improving financial inclusion. The bridging process between financial knowledge and financial behavior is among the crucial mechanism where a good transmission of information should occur. Trust plays a significant role in this process since people traditionally prefer to engage in financial transactions with reliable parties such as neighbours or family members. It is reasonable since financial transactions, such as saving and financing, are a form of trust-intensive interactions involving money exchange. Such exchanges can occur not only depending on the legal validity of the contract but also on mutual trust among the individuals involved (Guiso et al., 2004). Thus, trust is necessary to encourage good information transmission between them, either for the people doing the transaction or the third party who facilitates the exchange.

Social capital theory, on the other hand, has been acknowledged in economic research to explain trust and measure trustworthiness between people (Putnam, 1993). It is a concept that comprises an accumulated trust within society through repeated social interactions, information sharing, and shared norms (Bongomin et al., 2018; Cull et al., 2016). In a community with a high social capital level, individuals tend to have high trust among members because they obey specific rules and punishments in the community network (Coleman, 1988). In turn, an intense social

interaction might influence individual financial decisions through the transmission of information between members (Duflo & Saez, 2003). This mechanism occurs either indirectly, such as through observing the behavior of other members in the network, or direct exposure to information exchange from their relationships. It is also easier to spread information and financial knowledge within a more connected community.

Literature has widely investigated how social capital impacts economic and financial development. For instance, trust as the proxy of social capital in Italy was found to affect local financial sector development and economic growth (Guiso et al., 2004; Helliwell & Putnam, 1995). In addition, the result showed that in areas with high social capital intensity, households tend to use checks, prefer to invest in stock rather than cash, have better access to institutional credit, and have low use of informal credit. Using cross-country data analysis, Law & Ibrahim (2013) concluded that social capital complements existing formal institutions in promoting financial development. Moreover, it is suggested that social capital plays a more immense and considerable contribution to fostering the financial system in an area with low quality of institutions.

Specifically, social capital is also regarded as a resource to improve financial inclusion. It was found among poor people in Uganda that social capital has a mediating role in the relationship between their financial literacy and financial inclusion (Bongomin et al., 2016). The presence of social capital increases formal financial services access through the mechanism that people learn by observing their role model inside a community whom they believe are credible and knowledgeable. Similar conclusion was drawn in a research in Nigeria which captured SMEs as the unit of analysis. It was found that relationship of SME leader to external stakeholders can enhance their financial access from formal institution. However, social connection among SME leaders does not have the same mediating role to financial inclusion (Onodugo et al., 2021).

Trust as one of the universal parameters in social capital was found to be a leading factor for financial inclusion improvement in India (Ghosh, 2021). It is further concluded that the growing technology should not overtake the human interactions in promoting financial services. Banks can build a sustainable long-term business by earning trust through the integration of their advice and service. A wider cross-country study case also found that social trust is essential for financial service utilization by promoting financial inclusion. It might explain why particular countries experienced underdevelopment in their formal financial sector.

In this paper, we aim to analyze the role of social capital on financial inclusion in Indonesia. The financial inclusion is measured by individual account ownership on formal financial institutions following the World Bank definition. Furthermore, we interpret social capital using R. Putnam's (2000) and Szreter & Woolcock's (2004) definitions to elaborate on different forms of social capital. We include the bonding and bridging concepts as the primary measurement to represent group homogeneity. Bonding refers to a strong network association between members with similar backgrounds and outlooks (homogenous), such as family and neighborhood. Bonding is potentially more visible in rural areas (Glatz & Bodi-Fernandez, 2020; Qin et al., 2022; Sørensen, 2016). Contrarily, bridging comprises respect for value and mutuality character among people with different backgrounds (heterogeneous). This kind of social capital bridging is most prominent in urban society (Glatz & Bodi-Fernandez, 2020; Qin et al., 2022; Sørensen, 2016). Furthermore, we also elaborate the third basic form of social capital called linking ties, which is defined as a relationship by access to power and influence (Scrivens & Smith, 2013).

Indonesia is an interesting case study due to the following reasons. First, the problem of financial inclusion is still challenging in Indonesia. The country still reports a high number of people living without access to any formal financial institution. Although financial authorities have addressed the issue, World Bank reported that in 2017, 51% of Indonesian adults still did not own a bank account (Demirgüç-Kunt et al., 2017). Second, in the same report, Indonesia also ranked as the fifth country with the lowest financial inclusion, following Pakistan, Ethiopia, Nigeria, and Colombia under the same parameter. A recent Financial Services Authority study reported that Indonesia's financial inclusion rate has increased to 76.19%. This number was measured through a combination of people's accessibility to the financial institution, products, and services (OJK, 2020). However, this outcome still needs to be improved since a low financial inclusion can hamper economic development. People without access to formal

financial services tend to be vulnerable to financial instability (Demirgüç-Kunt et al., 2017).

Third, Indonesia is widely known for its traditional social capital embodied in *gotong royong* or mutual aid (Dokhi et al., 2017). The basic idea of *gotong royong* is a form of social engagement that includes participating in communal activities within or across workplaces and neighborhood areas. Social engagement is created to achieve the same vision among community members. Therefore, trust and mutual objectives between people in the group are essential to build social capital in Indonesia. With these characteristics, social capital seems essential as a medium of policy transmission, especially for increasing financial inclusion in the unbanked society.

To the best of the authors' knowledge, there is a lack of literature investigating the link between social capital and financial inclusion in Indonesia. Previous studies only focused on the city-level case study, making it hard to generalize the results (Manzilati, 2022; Nuryakin et al., 2021; Rokhim et al., 2021) . Hence, for a remarkable contribution, this study employs a broad representation of the Indonesian sample using Susenas. Thus, our results can be generalized at the national level and provide more comprehensive policy implications to implement.

RESEARCH METHOD

This study used the 2018 National Socio-Economic Survey (Susenas) datasets. Susenas is a national-level household survey conducted by the Indonesian Central Bureau of Statistics. It covers all 34 Indonesian provinces, making it an adequate representation of the national sample. The social capital and financial inclusion variables were obtained from the latest Social, Culture, and Education module, first introduced in 1994 and covered around 75,000 households. The data were collected once in three years and designed in a cross-sectional study employing different samples in every data collection period.

The dependent variable defined in this study is the ownership of individual savings in formal financial institutions. The questions in the Susenas questionnaire were: "Does (name) have any savings/savings in the form of money?". This question was rated using four answers: (1) Yes, in financial institutions (banks, cooperatives), (2) Yes, in non-financial institutions, (3) Yes, in financial institutions and non-financial institutions, and (5) No. The answers of (1) and (3) were recoded as 1 to represent savings ownership in formal and informal institutions and the answer of (2) was recoded as 0, meaning that the person does not have saving ownership in formal financial institution. Meanwhile, respondents who answered option (5) were excluded from the observation.

The present study interpreted the concept of social capital as bonding, bridging, and linking. Bonding is a social tie within members of a homogenous social group (Putnam, 2000), while bridging is that which is focused on a heterogeneous society. Furthermore, linking covers the relationship between people with different statuses or power. In the Susenas survey, the bonding variable was best proxied using individual attendance in neighborhood meetings, involvement in social services around neighborhood areas, and participation in the organization outside the workplace/school. The bridging variable was probed by participation in activities held by different ethical and/or religious groups. Last, the linking variable was measured by participation in the provincial/national election because participation in the political events indicates trust in people of higher status (Scrivens & Smith, 2013).

We estimated the value for bonding, bridging, and linking variable by putting binary value for each question first. The value would be summed according to their respective social capital variable and re-coded relative to the average value (Dokhi et al., 2017; Muzayanah et al., 2020). For bonding variable, total value ranged from 0 to 3. Each individual value would then be coded as 1 if higher than average and 0 if lower. The same re-coding treatment was implemented for bridging variable where total value only ranged from 0 to 2. For linking variable, binary value was directly employed since the variable was only represented by one question (Table 1).

Furthermore, this research included socio-demgraphic variables of the respondents to control the different individual background. It is necessary as knowledge formation about financial issue might vary according to individual condition. Following Bekele (2022), Devlin (2009), and Percoco (2015), variables chosen as individual characteristics were education level, marriage status, sex, age, number of children, and household size. We also employed people involvement in *arisan*, which is a regular social gathering involving saving rotation activity among members (Rammohan & Johar, 2009). All of these

variables are continuous, except marriage status, sex, asset ownership, and residential area. Age square was employed in order to model the effect of differing ages, rather than assuming that the effect is linear for all ages. Meanwhile, observations in this research only employed individuals over 15 years old. By restricting the age, our sample only observed adult respondents which are capable to make savings decision either in formal or informal institution.

Table 1. Research Variables

Variable	Definition
Financial Inclusion	Own saving in formal financial institutions (bank, cooperatives)
Bonding	1. Attend neighborhood meetings
	2. Involve in social services in neighborhood area
	3. Join other organizations outside the workplace/school
Bridging	4. Participate in activities from other racial groups
	5. Attend activities of other religious groups
Linking	6. Participate in provincial/national level election
Socio Demography	
Education	Highest education status
Marriage Status	Current marriage status. Married=1, Unmarried=0
Sex	Gender. Female=1, Male=0
Arisan	Involved in *arisan* activity. Involved=1, Uninvolved=0.
Age	Individual age
Age Square	Square value from age
Number of Children	Total unmarried children in the family
Household Size	Total family member under the same household
Wealth	
Asset Ownership	Housing ownership dummy. Self-owned=1, Not self-owned= 0
Working Status	Status in main occupation
Geography	
Area	Residence location. Urban=1, Rural=0

Wealth category was also employed to control income variation between respondents. It is commonly analyzed in microeconomics theory that personal saving is directly influenced by individual income and consumption (Pindyck & Rubinfeld, 2013), hence income is an important determinant of saving decision. However, Susenas Social, Culture, and Education Module did not provide data on this matter. Thus, we represented income by working status and housing ownership. Geographical background was also composed by a dummy variable accounting 1 for urban and 0 for rural living. It is important because issues in financial inclusion typically differ in these two areas (Ghosh, 2021).

We integrated this information into empirical framework to estimate the correlation of social capital on financial inclusion, while controlling other factors. To quantify the correlation between financial inclusion and social capital, we employed logistic regression method. Such method is useful to analyze and interpret data with binary number as the dependent variable and understanding the relative impact on different household characteristics. The following equation was estimated:

$$P\ (y_i = 1 \mid X1_i, X2_i, X3_i, Z_i\ ) = \alpha + \beta_1 X1_i + \beta_2 X2_i + \beta_3 X3_i + \beta_4 Z_i\ +\ e_i \quad (1)$$

where i refers to individual sample, i=1,2,3,……,74.454. Yi refers to likelihood of formal saving ownership from individual i as the dependent variable representing financial inclusion. We used binary value to adjust to the type of survey data. The value was accounted as one if a formal saving account was present and zero if otherwise. *X*1i, *X*2i, and *X*3i are predictor variables containing Bonding, Bridging, and Linking measurement respectively. Each variable was also employed in binary value. The value of β1, β2, β3 should be statistically different from zero if the effect of social capital was present. Zi is a vector of individual control variables capturing socio-demography, wealth, and location characteristics. To accomondate arbitrary correlation within the same family, we clustered the standard errors at the household level (Xu, 2019; Yudhistira et al., 2021).

RESULT AND DISCUSSION

Overview of Research Object

Summary statistics for variables included in this research are presented in Table 2. After dropping observations with missing values and respondents aged below 15 years old, we reached a sample size of 74.454 observations. Across the samples, almost 83% people were formal account holders. The value was higher than the national estimation which only reported around 51% of adult formal saving in 2017 (Demirgüç-Kunt et al., 2017). For the social capital measurement, our sample also shows that more than half of them were engaged in bridging and linking activity. Only around 48% had bonding engagement.

Table 2. Descriptive Statistics of Research Variable

Variable	Observation	Mean	Std. Dev.	Min	Max
Financial Inclusion	74,454	0.828377	0.377055	0	1
Bonding	74,454	0.479988	0.499603	0	1
Bridging	74,454	0.761934	0.425903	0	1
Linking	74,454	0.696376	0.459825	0	1
Control: Socio Demography					
Education Level	74,454	3.490706	1.191783	1	5
Marriage Status	74,454	0.729390	0.444278	0	1
Sex	74,454	0.505722	0.499971	0	1
Arisan	74,454	0.276157	0.447098	0	1
Age	74,454	40.13584	14.30744	15	97
Age Square	74,454	1815.586	1258.181	225	9409
Number of Children	74,454	1.146292	1.249590	0	10
Household Size	74,454	4.189285	1.756447	2	18
Control: Wealth					
Asset Ownership	74,454	0.832004	0.373866	0	1
Working Status	74,454	1.635587	1.300925	0	5
Control: Geography					
Area	74,454	0.562643	0.496064	0	1

Regarding the individual characteristics, the average of our respondents reported completing at least a junior high school degree. More than half of respondents were married (72%), owned a housing property (83%), and lived in an urban area (56%). For the continuous variables, on average, our sample was around 40 years old, had one child, and lived with four people in a household. Gender, on the other hand, was equally distributed, with 50% of respondents being female and the rest male.

Table 3. Correlation Matrix among Social Capital Variable

	Formal Saving	Bonding	Bridging	Linking
Formal Saving	1.0000			
Bonding	0.0922***	1.0000		
Bridging	0.0987***	0.0051***	1.0000	
Linking	0.0730***	0.1306***	0.0583***	1.0000

*** denote significant level at 1%.

Before doing the descriptive statistics, we estimated the correlation matrix of key variables in Table 3. It can be seen that the social capital variable had a statistically significant positive correlation with formal saving ownership. However, the value was relatively small in magnitude, as also found in Ghosh (2021). The result indicates a weak correlation among key variables, suggesting that our estimation did not encounter a severe collinearity problem (Gujarati, 2003). Interestingly, the bridging and bonding variables had a negative correlation, which means that the two variables tend to move in opposite directions. In addition, the magnitude of the correlation between these two variables was very small and negligible. Thus, bonding and bridging might be mutually exclusive or possibly related, but not in a linear way. This finding indicates that each social capital estimation is independent and fulfils the necessary regression analysis condition (Gujarati, 2003).

Factors Affecting Saving Behavior

We provide the main logit regression result in Table 4. As the first step, we regressed only the main interest variable without controlling socio-demography, wealth, and geographical characteristics. The result is presented in column 1. In general, our estimates support the hypothesis that social capital may positively affect financial inclusion, shown by the higher likelihood of formal saving ownership. The bonding, bridging, and linking social capital were positive and statistically significant at 1%. The following three columns of Table 4 present the complete result of each social capital indicator. In column 2, the bonding variable was positively associated with financial inclusion but statistically insignificant. Columns 3 and 4 also exhibit a similar positive association in 1% and 5%, respectively.

Table 4. Social Capital, Socio-Demography, Wealth, and Geography Variable Affecting Saving by Logistic Regression

Independent Variable	Dependent Variable (1=Formal Saving, 0=No Formal Saving)				
	No Control	Bonding & Control	Bridging & Control	Linking & Control	Full Model
Bonding	0.0958***	0.0228			0.0154
	(0.0225)	(0.0253)			(0.0254)
Bridging	0.3894***		0.209***		0.205***
	(0.0276)		(0.0292)		(0.0293)
Linking	0.1835***			0.0866**	0.0758**
	(0.0269)			(0.0284)	(0.0285)
Socio-Demography					
Education					
Elementary School		0.366***	0.357***	0.351***	0.339***
		(5.34)	(5.17)	(0.0689)	(0.0694)
Junior High School		0.688***	0.675***	0.669***	0.653***
		(9.44)	(9.19)	(0.0734)	(0.0739)
Senior High School		1.311***	1.295***	1.290***	1.272***
		(17.96)	(17.64)	(0.0734)	(0.0740)
Diploma and above		2.644***	2.623***	2.622***	2.598***
		(31.46)	(0.0845)	(0.0844)	(0.0849)
Marriage Status (Married=1)		0.0159	0.0150	0.0164	0.0132
		(0.0326)	(0.0326)	(0.0326)	(0.0326)
Sex (Female=1)		-0.488***	-0.490***	-0.491***	-0.485***
		(0.0237)	(0.0231)	(0.0231)	(0.0238)
Arisan		-0.142***	-0.146***	-0.143***	-0.156***
		(0.0270)	(0.0265)	(0.0265)	(0.0270)
Age		0.0692***	0.0694***	0.0689***	0.0687***
		(0.00490)	(0.00490)	(0.00489)	(0.00491)
Age Square		-0.0006***	-0.0006***	-0.0006***	-0.0006***
		(0.00005)	(0.00005)	(0.00005)	(0.00005)
Number of Children		0.0461***	0.0471***	0.0476***	0.0477***
		(0.0126)	(0.0126)	(0.0126)	(0.0126)
Household Size		0.0106	0.00877	0.0101	0.00884
		(0.0101)	(0.0101)	(0.0101)	(0.0101)
Wealth					
Asset Ownership		0.0411	0.0541	0.0320	0.0427
		(0.0379)	(0.0378)	(0.0380)	(0.0381)
Working Status					
Self-Working		0.0800**	0.0821**	0.0828**	0.0827**
		(0.0303)	(0.0303)	(0.0303)	(0.0303)
Officer/Employee		0.488***	0.485***	0.489***	0.485***
		(0.0346)	(0.0346)	(0.0346)	(0.0346)
Freelance		-0.506***	-0.496***	-0.500***	-0.495***
		(0.0578)	(0.0579)	(0.0577)	(0.0579)
Housewife/Unpaid Work		0.0107	0.00894	0.0150	0.0112
		(0.0440)	(0.0441)	(0.0440)	(0.0441)
On school		0.0430	0.0387	0.0402	0.0350
		(0.0614)	(0.0615)	(0.0614)	(0.0615)
Geography					
Area (Urban=1)		0.410***	0.390***	0.408***	0.391***
		(0.0276)	(0.0277)	(0.0275)	(0.0278)
Constant	1.116***	-1.249***	-1.373***	-1.261***	-1.380***
	(0.0302)	(0.135)	(0.136)	(0.135)	(0.136)
Obs	74,454	74,454	74,454	74,454	74,454
Pseudo R2	0.006	0.121	0.122	0.121	0.122
Prob>chi2	0.000	0.000	0.000	0.000	0.000

Coefficient value. Robust standard error in parentheses, corrected for household cluster.
*, **, and *** denote significant level at 10%, 5%, and 1%.

Table 5. Marginal Effects of Social Capital Variable affecting Saving by Logit Model

Independent Variable	Dependent Variable (1=Formal Saving, 0=No Formal Saving)				
	No Control	Bonding & Control	Bridging & Control	Linking & Control	Full Model
Bonding	0.0135***	0.0028			0.0019
	(0.0032)	(0.0032)			(0.0032)
Bridging	0.5503***		0.0265***		0.0260***
	(0.0039)		(0.0037)		(0.0037)
Linking	0.0259***			0.0109***	0.0096***
	(0.0038)			(0.0036)	(0.0036)
Control: Socio-Demography		Yes	Yes	Yes	Yes
Control: Wealth		Yes	Yes	Yes	Yes
Control: Geography		Yes	Yes	Yes	Yes
Obs	74,454	74,454	74,454	74,454	74,454
Pseudo R2	0.006	0.121	0.122	0.121	0.122
Prob>chi2	0.000	0.000	0.000	0.000	0.000

Coefficient value. Robust standard error in parentheses, corrected for household cluster.
*, **, and *** denote significant level at 10%, 5%, and 1%.

Table 6. Marginal Effects of Social Capital Variable and Its Interaction affecting Saving by Logit Model

	Dependent Variable (1=Formal Saving, 0=No Formal Saving)		
	Full Model	Interaction with Urban dummy	Interaction with *Arisan* dummy
Bonding	0.0154	0.0764*	0.0152
	(0.0254)	(0.0329)	(0.0301)
Bridging	0.205***	0.204***	0.205***
	(0.0293)	(0.0293)	(0.0293)
Linking	0.0758**	0.0768**	0.0758**
	(0.0285)	(0.0286)	(0.0286)
Bonding x Urban		-0.141**	
		(0.0472)	
Bonding x *Arisan*			0.00049
			(0.0495)
Control: Socio-Demography	Yes	Yes	Yes
Control: Wealth	Yes	Yes	Yes
Control: Geography	Yes	Yes	Yes
Constant	-1.380***	-1.409***	-1.380***
	(0.136)	(0.136)	(0.136)
Obs	74,454	74,454	74,454
Pseudo R2	0.122	0.123	0.122

Coefficient value. Robust standard error in parentheses, corrected for household cluster.
*, **, and *** denote significant level at 10%, 5%, and 1%.

The last column in Table 4 provides our full model estimation with all social capital indicators and control variables. The regression result generally shows that social capital associated with a higher likelihood of financial inclusion. Hence, it supports our hypothesis that bigger exposure to social capital might stimulate higher trust to engage with formal financial service provider. In turn, it will decrease the reliability on informal institution while increasing the level of financial inclusion following Ghosh (2021) and Xu (2019).

Along with the marginal effect estimation in Table 5, the bridging social capital showed the highest significant coefficient and marginal value. The coefficient on bridging was 0.205 (significant at 1%) Thus, one standard deviation increase in bridging improved formal saving participation by almost 0.09 or around 11% relative to the sample mean. This result is consistent with the previous study but shows a relatively smaller magnitude compared to Ghosh (2021) and Xu (2019), with 30% and 40% increase, respectively. Meanwhile, the linking social capital also appeared to have a positive and significant association with formal saving, but their magnitude is far lower. These findings suggest that people engaging with the heterogeneous community are more likely to save money in formal institutions. The results for the control variables also showed a significant association.

It is shown that the higher the education level, the higher the probability of saving money in formal institutions. This finding indicates that education is still essential in providing an understanding for people to engage with financial services. It also supports the financial literacy argument which concludes that education attainment can improve financial knowledge and inclusion (Devlin, 2009).

Meanwhile, age variable also had a statistically significant and positive association with financial inclusion. One potential explanation may come from OECD (2020) mentioning that the group of middle aged (aged 30-59) has significantly higher scores in financial literacy and its elements, as well as financial well-being. It is also supported by adult exposure in workplace (e.g. payroll, insurance, pension fund) or daily routine (e.g. mortgage, saving, payment). On the other hand, the younger community have lower financial knowledge and less prudent financial behavior due to relative dependency in parents or caregiver (OECD, 2020). This pattern, however, provides an inverted U-shaped as shown by a significant negative coefficient on squared age variable. Thus, people reaching a certain age might experience a decline in financial literacy since they are more prone to a poorer decision making and lower wellbeing (Shimizutani & Yamada, 2020; Yu et al., 2021).

Marriage status and household size had no association with financial inclusion. In terms of wealth characteristics, asset ownership also appeared to have an insignificant association with financial inclusion. It is notable that the relationship between asset ownership and saving are commonly found in inverse association since people motivated to save to buy asset. Hence for family with homeownership, their motive to save is lower and even disappears. The result of present study supports previous findings such as by Percoco (2015) and Tan et al. (2022), arguing that asset ownership, especially housing, can lead to a consumption effect where people with homeownership have a lower saving rate and higher consumption for elastic goods. People with asset ownership also tend to substitute their cash-saving behavior with the asset and treat them as financial cushion. Thus, in times of difficulties, people with asset ownership choose to leverage their asset in the same manner of people with saving withdrawal (Noerhidajati et al., 2021). People living with an active payroll (i.e. officer/employee, self-working, and freelancer) were reported to have a significant association with financial inclusion. People with passive income such as housewife and student, on the other hand, does not possess significant relationship with the inclusion. This finding is similar with Bekele (2022) and Devlin (2009) mentioning that employed people are living with income receipt and most likely disbursed via financial institutions. Thus, the possibility of having a bank account is higher in this group. Moreover, among the significant variables, freelance job was found to be inversely correlated with financial inclusion. Following Bekele (2022), a possible explanation for this result might be related to job security. Employee/officer is highly related with stable wage system while freelancer is living with more volatile income. Hence, employment in less secure status will lead to a lower financial inclusion.

Lastly, people living in urban areas had a higher likelihood of financial inclusion. This relationship supports previous research including Bekele (2022) and Yangdol & Sarma (2019) which elaborated the transaction cost theory as the main reason. Urban society mostly lives with medium to high income, making them a good market for financial services. Rural people, on the other hand, belong to low-income category and reside in remote area. Thus, financial service provider will face a higher operating cost in rural compared to the urban area. The business decision will then affect the financial inclusion rate.

The bonding social capital showed a positive relationship with preference to save in formal saving, but was statistically insignificant. The bridging and linking variable, however, showed a significant positive sign. The findings corroborate the study of Onodugo et al. (2021), who observed firm-level social capital on their financial inclusion. The research concludes that bonding has no effect and bridging has the significant moderating effect to induce financial inclusion. People will take more advantage of their heterogenous community to gather various perspectives and information, including financial knowledge. The information will then be used to create a financial decision making and in turn will led to a higher financial inclusion.

We also extend the estimation by employing the interactions of the bonding variable with location (urban dummy) and *arisan* activity to elaborate the bonding social capital creation. The estimation results are presented in Table 6, column 2 and 3. For the first estimation, the result implies that bonding social

capital can be crucial to increasing financial inclusion in rural areas, indicated by a significant negative sign. One possible explanation is the argument that bonding is indeed more prominent in rural area due to the less institutional support services and smaller group sizes. This characteristic can lead to a bigger incentive for rural people to maintain good and loyal relationship with peers (Glatz & Bodi-Fernandez, 2020; Qin et al., 2022; Sørensen, 2016). Thus, although the overall estimation indicates that bonding did not have a significant association with financial inclusion, it is still advisable to be taken into account in rural area.

Furthermore, *arisan* is also included due to its characteristic as one of the popular community gatherings in Indonesia involving a financial activity during the meeting. It is a kind of group lottery where members contribute a predetermined amount of money at periodic meetings (Rammohan & Johar, 2009). The sum of all collected money goes to a member whose name comes out at a random draw and the gathering ought to be held until all members win the draw. By participating in this gathering, people will be forced to set aside a certain amount of money periodically and earn the complete collected money when they win the lottery. This kind of activity is similar to informal saving behavior, hence indicating that *arisan* could be a substitute for saving money at a formal financial institution.

To rule out the possibility of substituting formal financial activity with *arisan*, we added it as an interaction variable in the model. The information was obtained from the questionnaire question "does respondent follow *arisan* as a social activity in the surrounding neighborhood?" with answer (1) Yes, (2) No, or (5) No Activity, where the result is presented in Table 4, column 3. Upon this estimation, it was found that *arisan* had a positive but statistically insignificant association with financial inclusion. Hence, we can imply that bonding variable created during *arisan* gathering had no association with financial inclusion.

Research Implication

This paper highlights the role of social capital in promoting financial inclusion. The development of social capital within a society is crucial as a means of mediation exchange among members. Our results confirm previous literature that found a positive relationship between social capital with the preference to save in formal institutions, hence increasing the financial inclusion level (Ban et al., 2020; Cull et al., 2016; Newman et al., 2014)). This finding supports the idea that information, including financial knowledge, might be transmitted among community members.

From a policy perspective, awareness of the importance role of social capital should be included in the Indonesian financial inclusion agenda. The intervention can be enabled through the promotion and formation of community-based program such as self-help groups (Ban et al., 2020; Dowla, 2006; Ksoll et al., 2016). These groups has been widely implemented in developing countries and originally arranged to encourage microcredit in rural area. For instance, Grameen Bank establishment in Bangladesh was among the notable practice on self-help group (SHG) formation focusing in microcredit. Currently, SHGs practice is also developed to contribute more on household saving improvement, as found in Cambodia (Ban et al., 2020), Malawi (Ksoll et al., 2016), and eastern India (Nichols, 2021).

However, the formation and implementation of SHG policy for financial inclusion vary across countries. In Cambodia, each group is required to meet weekly for financial training and contribute to the savings pool monthly. The membership is open for men and women as long as they have full commitment to join the program (Ban et al., 2020). Meanwhile, members of SHG in eastern India are obliged to put a weekly deposit into the group account managed by bank agent. This routine enables them to connect with formal financial institution and receive loan in the future as well. The membership in this program, however, is limited to women (Nichols, 2021). Combination of saving and loan promotion is found in Malawi's SHG. The program is specifically endorsed by a local financial institution. Members are required to pay a certain minimum saving level on a weekly basis. Once a month, the pooled fund will be offered as a loan to the member (Ksoll et al., 2016).

In line with the result of this study, the government should be encouraged to highlight more on the development of bridging and social linking. Practical implication of this policy can be carried on during membership selection before a SHG is formed. A group consists of people with various backgrounds who should already possess trust among members. With this arrangement, each person is expected to exchange heterogenous information particularly regarding the financial knowledge and formal saving. Meanwhile, community-based programs with bonding

social capital are advisable to be implemented in rural areas. It can be arranged in a union of homogenous affiliation such as farmer's association or small business community.

Motivated by the current practices in another countries, this policy needs the involvement of multiple stakeholders including governments, financial supervisors, banks, and civil society at large. As the field officer, the government might arguably choose banks that focuses in microfinance as the pilot project executor (Ban et al., 2020; Ksoll et al., 2016; Nichols, 2021). This institution helps in working with unbanked people and allows them to create a better information exchange. Once the program is designed, monitored, and evaluated, other financial institutions are encouraged to duplicate the plan or develop a better scheme based on the pilot practice.

It is also advisable to appoint a bank agent that already has social networks with their members, or even has their own members. This strategy mainly emphasizes the established trust among financial facilitator and members. Such model is already implemented in India through Bank Sakhi, when banks are authorized to designate third party agents to offer banking and financial services on their behalf (Pinto et al., 2020). The bank is responsible to train and deploy SHG members as agents. In turn, the agents are responsible for transmitting their financial knowledge to other members whilst encouraging the utilization of formal financial institution especially for their saving purpose. Since the program establishment in 2016-27, Bank Sakhi has successfully operated across 12 states and collectively completed 748,454 transactions worth over approximately USD 40 million (Pinto et al., 2020).

While SHG program requires a long implementation period, our research could not capture the unobserved time varying factors due to the observational data characteristics. It is also limited to the explanation about the mechanisms through how the network operates especially in financial transaction. Future research should address these issues and develop an experimental-based design as well as randomized control trials technique (Ban et al., 2020; Ksoll et al., 2016).

CONCLUSION AND SUGGESTION

Evidence from the logistic regression estimation shows that, in general, social capital has a significant association with financial inclusion. It may confirm that information exchange among community members is essential to influence formal saving behavior. This mechanism occurs because members trust each other, thus creating an automatic validation for the information shared. Further, it can affect their financial decision by choosing to save their money in formal institutions rather than engaging in informal practices such as keeping cash at home. The social capital development within a more heterogonous society was also found to have a more significant influence on financial inclusion than the homogenous one.

This research is explored using a large and representative individual dataset for Indonesia to examine how social capital associated with financial inclusion. The financial inclusion is measured through preference to save money in the bank (formal institutions), while social capital consists of bonding, bridging, and linking variables. These three indicators of social capital consider both the horizontal and vertical engagement among people, hence allowing a more comprehensive information transmission model.

This study suggests that Indonesian policymaker may develop a community-based program such as self-help group to increase financial inclusion and people's involvement in formal financial institutions through bridging and linking social capital. Meanwhile, community-based programs with bonding social capital are more encouraged to be implemented in rural areas.

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How macroeconomic performance affects farmer's term of trade: Evidence from East Java Province, Indonesia

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ABSTRACT

This paper attempts to show that causality of the impact of macroeconomic factors in the form of inflation and gross domestic product on the farmer term of trade in East Java Province, Indonesia. This research was carried out over eleven years quarterly, starting from 2010-2021, and was analyzed using the Vector Error Correction Model (VECM). The finding of this study indicated that, in the short and long term, inflation has a negative impact but not a significant effect. A 1% increase in inflation in the current period would have the impact of decreasing the term of trade of farmers by 0.0009% in the future period. This often happens due to the decline in the value of the currency which is mostly caused by speculator buyers who buy products from farmers. Meanwhile, a 1% increase in gross regional domestic product in the current period would have an increase in the farmer term of trade by 0.02% in the next period. This finding shows that inflation cannot be seen as extraordinary, affecting to the farmer's term of trade. Rising inflation can lead to the decreasing level of farmers' welfare due to costs that must be paid by farmers.

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INTRODUCTION

The impact of macroeconomic performance factors on the level of farmers' welfare is questionable in the current modern era. Most of the transition from the agricultural to industrialization era can threaten the existence of the welfare of the farmers (Lee et al., 2020). Agriculture is one of the backbones of the national economy that has been empirically proven to be able to provide extraordinary resilience in 1997-1998 and during the COVID-19 pandemic crisis. It proves that the agriculture, forestry, and fisheries sectors can provide economic stimulus for the national economy (Junaidi & Jannah, 2020). Also, it is hoped that agriculture will continue to have a positive impact on the farmers' welfare. That way, even though the conventional way of life tends to be increasingly abandoned, the existence of farmers in this case is still needed to meet the demand of Indonesian people, the majority of which are main consumer of agricultural commodities, especially rice (Goulet, 2020).

Rice commodity is one of the staple needs for the majority of people in Indonesia (Nelly et al., 2018). The high level of public demand has an impact on the pattern of rice commodity availability. Some people who have a habit of consuming food other than rice might even switch to white rice. This is why rice is considered as the main source of carbohydrates and protein (Hermanto, 2017). In addition, rice also has a

unique social image, people are not easy to stop the habit of consuming rice for their basic needs.

Based on these conditions, the rice commodity has a large influence, especially on the stability of the national economy (Wibowo, 2020). This situation may impact the rice price stability in the market. According to Firdhani & Ulama (2016), an increase in the price of rice by 10%, it will have an impact on increasing the total poverty rate by one percent. This issue will cause a structural impact if not controlled both by creating a fitting policy and by increasing the welfare of farmers to produce maximum agricultural products (Murdy, 2017).

Farmers' welfare can be described in an index of the farmers' term of trade (Wibowo, 2020). Although considered not being able to fully represent farmer welfare, this formula is still used today (Sugiana et al., 2018). According to BPS (2021b), The food crop farmers' term of trade in East Java Province in December 2021 increased by 1.33% from 100.88 to 102.22. This is because the price index received by farmers (It) had a higher increase than the price index paid by farmers (Ib). The index of the price received by farmers (It) increased by 2.14% and the index of the price paid by farmers (Ib) increased by 0.80%. This result shows a 1.41% increase when compared to that of December 2020, year on year.

The level of farmer welfare is related to the level of supply of rice commodity, making it very influential to the price stability of rice commodity in East Java (Plummer et al., 2012). The rice commodity is also closely related to the current inflation. Volatility in commodity prices since the early 2000s has led the policymakers to update their policies to pay attention to its effect on inflation (McCormack, 2015). Economic activity is identical to activity in the agricultural sector, because it can describe domestic supply and demand pressures and has a driving effect on inflation (Chopra et al., 2018; Joshi & Acharya, 2011). Agricultural commodities are the main input in the process of mass production of goods. Changes in the price of rice commodity are reflected in the marginal production costs, which are ultimately transmitted to the aggregate price level (Rather et al., 2015)

The term of trade of food crop farmers in general in August 2021 was 101.06 (Table 1). This increased by 3.33% when compared to July 2021, which was 97.81. This happens because the price index received by farmers increased higher than the paid index. The index of prices received by farmers increased by 3.37%, while the index of prices paid by farmers only increased by 0.04%. Whereas, the farmers' term of trade in August 2021 compared to December 2020 decreased by 1.38%. However, when compared year on year, it decreased by 0.87%.

The instability of rice prices does not always have impact on the welfare of rice farmers (Just, 1974). Identical poverty levels pinned on farmers make this a separate question, economic growth for whom? (Adejumo & Adejumo, 2019) This has become a debate when economic growth continues to increase annually but the welfare level of farmers still tends to be low. This is especially the case for rice farmers in some areas, including one in East Java Province.

Economic growth which is described in the figures for the Gross Regional Domestic Product of East Java Province must also be in favor of the welfare of rice farmers (Turok & McGranahan, 2019) so that the increase in economic growth provides an increase in the level of welfare of rice farmers. Through various matters related to input factors in the commodity sector, it is hoped that rice farming will not burden farmers to continue to produce rice sustainably. So, the hope is that in the industrial era, which tends to be abandoned, the agricultural sector can still exist and provide a level of welfare for farmers, especially in East Java Province.

Table 1. Farmer Term of Trade in East Java Province, 2020-2021

Term of Trade	Period				Change		
	Dec'20	Aug'20	Jul'21	Aug'21	Aug'21 to Des'20 (cum)	Aug'21 to Aug'20 (yoy)	Aug'21 to Jul'21 (mtm)
					..... %		
Accepted Index (It)	110.33	108.45	106.37	109.96	-0.33	1.39	3.37
Paid Index (Ib)	107.65	106.37	108.76	108.80	1.07	2.28	0.04
Farmer term of trade (TOT)	102.48	101.95	97.35	101.06	-1.38	-0.87	3.33

Source: BPS (2021a)

The purpose of this article is to look at the impact and influence of macroeconomic variables on the level of farmers' welfare. It inspects whether the current economic growth has reflected an alignment with the level of welfare of the farmers, as well as how the impact occurs in future conditions both in the short and long term. Of course, this is very interesting to examine considering the existence of rice commodities which will continue to be needed along with the increasing population.

The level of welfare of farmers' is reflected in the level of the farmers' term of trade. Farmers' term of trade is a main indicator of the approach to the level of farmer welfare (BPS, 2021a). Farmers' term of trade in this case can be interpreted as a comparison between the index of prices received by farmers (It) with the index of prices paid by farmers (Ib). If the farmer's term of trade is greater than 100, it means in this case there is a surplus. In other words, farmers' incomes experience a break even point. This means that the increase or decrease in the price of production is equal to the percentage increase or decrease in the price of goods consumed by farmers. The farmer's income is equal to his expenditure. However, if previously the farmer's income was less than 100, it means that the farmer had a deficit. This means that farmers' income is less than their expenditure.

Price Index Received by Farmers (It) is an index that reflects volatility in the price of goods produced by farmers. It is can used as supporting data for calculating in agricultural sector income.

The definition of the price received by the farmer himself is the average producer price of the farmer's production before adding transportation costs and packing costs to the selling price, which is called the farm rate (Departemen Pertanian, 2013). Meanwhile, the Price Paid Farmers Index (Ib) can be described as the volatility of prices of goods consumed by farmer households and the prices of goods needed to produce agricultural products (Patiung, 2019). Price paid by farmers can simply be interpreted as the average retail price of goods/services consumed or purchased by farmers, both to meet their own household needs and for agricultural production costs.

Inflation is a condition where there is an absolute (sharp) price increase that occurs continuously in the long term and also over a long period (Solaymani & Yusma Bt Mohamed Yusoff, 2017). Inflation is the tendency of a general and continuous increase in prices. This does not mean that every item increases by the same percentage, but that there is a different increase in each product.

Inflation itself is an indicator of changes in prices that tend to increase continuously. To measure the general price level or the inflation rate, a price index is used whose measurement can be carried out in three ways, namely the Consumer Price Index (CPI), Wholesaler Price Index (IHPB), and the Gross National Product (GNP) deflator.

According to Wibowo (2020), the most widely used calculation of inflation is by using consumer price index (CPI). This is because consumer price index data can be obtained monthly, quarterly, or yearly. For Indonesia, consumer price index data is quite easy to obtain either from reports from the Badan Pusat Statistik (BPS), Bank Indonesia (BI), or other institutions.

According to Joshi & Acharya (2011), inflation results in several social costs, both the expected cost of inflation and the cost of unexpected inflation. Meanwhile, according to Bodhanwala et al. (2020), inflation will have influence on the macroeconomic condition in any country. The bad effects of inflation are distinguished in two aspects, namely those on the economy and those on individuals or society. A high inflation rate reduces production where inflation results in an increase of raw material prices and labor wages, so the calculation of the cost of goods will increase the selling price of local products (Wulandari et al., 2020)

Furthermore, the concept of Gross Regional Domestic Product (GRDP) is the market value of a finished good or service produced by a region within a certain period (Mubarak & Nugroho, 2020). One of gross domestic products is from agriculture, which is one of the main sectors among others.

The agricultural sector holds dominance compared to several other sectors (Safuridar, 2012). This is because some regions still depend on agriculture rather than industry. Agricultural development in East Java Province can be interpreted as a development of advanced, efficient, and resilient agriculture in covering macro-concepts, i.e., about the agricultural sector itself and with sectors other than agriculture (Arianto et al., 2018). The indicators used in evaluating and monitoring the performance of agricultural sector development in the regions include the GRDP of the agricultural sector, absorption of

labor, and its role in reducing poverty. In the agrarian East Java Province, the sector that gets the most priority in economic development is agriculture because it is viewed as the dominant sector in the economy when viewed from various contributions made.

RESEARCH METHOD

This research employed quantitative approach to provide insight into the correlation between variables. The data were obtained from the Badan Pusat Statistik of East Java Province. This research was carried out

consists long-run cointegration equation, (yt-1) is Variabel in level, (Γik) is regression coefficient matrix, (k-1) is ordo VECM from VAR, and (εt) is error term.

The following is the modeling of the Vector error correction model according to the variables used:

$$\Delta NTP = a + \sum_{i=1}^{n} \beta i \Delta NTP_{t-i} + \sum_{i=1}^{n} \beta i \Delta INF_{t-i} + \sum_{i=1}^{n} \beta i \Delta PDRB_{t-i} + \lambda EC_{t-1} + \varepsilon_t$$

This can be interpreted that a_0 is a constant, t is a deterministic trend, and is the error term. If the autoregressive of Y (Y_ (t-1)) contains a unit root (unit root), then the ratio t (t ratio) for a_1 should be consistent with the hypothesis a_1 = 0.

RESULT AND DISCUSSION

Macroeconomic Conditions of East Java

Economic growth in East Java Province in the fourth quarter of 2021 grew by 4.95% year on year (BPS, 2022). Macroeconomic conditions are influenced by several main factors, where the main ones are agriculture, forestry, and fishery. In 2021, this sector had a share of 11% overall. Until now, the sector still occupies the top three contributors to economic growth in East Java Province.

However, this is not in accordance with what happened with the increase in the farmers' term of trade in East Java province (BPS, 2022). It was recorded that the farmers' term of trade decreased from 107.13 in 2019 to 100.69 in 2021. The current study found that the farmers' term of trade in 2021 decreased by 0.75% if compared to that in 2020. This decrease was due to an increase in the price index received by farmers as many as 1.23%. It is lower than the increase of the price index paid by farmers, over eleven years quarterly, starting from 2010-2021. The data were analyzed using the Vector Error Correction Model with E-Views software.

As mentioned in the literature review, variables in this research are the farmers' term of trade (TOT); inflation (INF); and GRDP. The data processing software was the E-Views (version 12).

$$d\Delta yt = \mu 0x + \mu 1xt + \Pi xyt\text{-}1 + \Sigma\, ik\, \Delta yt\text{-}1 + \varepsilon td$$

where (yt) = The vectors contained in the variables in this research, (μ0x) represented by intercept vector, (μ1x) is Regression coefficient vector, (t) represented time trend, (Πx) is (αxβ) where (b)

which was overall 2%. This is lower when compared to the data and earlier findings shown previously.

This can represent the relationship that tends to be positive between the average term of trade of agricultural commodities for household consumption goods and production costs. Even so, it can be said that in 2021 it was generally lower than in 2020. Another factor that contributed to this was the increase of the inflation rate that occurred in all cities and regencies in East Java Province (BPS, 2021b).

The highest inflation happened in Sumenep Regency at 1.17% and the lowest inflation occurred in Surabaya at 0.65%. Inflation occurred due to a fairly high price increase, as increasing in most indexes of the expenditure group. Of the eleven expenditure groups, eight groups experienced inflation, two groups experienced deflation and one group experienced no change. The expenditure group that experienced the highest inflation was the food, beverage, and tobacco group at 2.12%, followed by the transportation group at 0.81%, the personal care and other services group at 0.54%, the food and beverage supply at 0.32%, household equipment, equipment and routine maintenance group by 0.17%, electricity, water, housing, and household fuel group by 0.11%, clothing, and footwear group by 0.09%, and the health group by 0.07%, while the expenditure groups that experienced deflation were the information, communication and financial services group by 0.06% and the recreation, sports and culture group by 0.02%. In this case, the education sector did not change.

The inflation rate in December 2021 was 2.45% and the year-on-year inflation rate (December 2021 to December 2020) which is also known as the inflation rate throughout 2021 was recorded at 2.45%.

Figure 1. Change of farmer terms of trade, 2019-2021

Farmer's Term of Trade

Referring to the data, it was found that all the variables were stationary at the standard level. Specifically, the term of trade had a coefficient value of 0.00. The variables of Inflation and Regional Domestic Product were also stationary at the standard level with a coefficient of 0.00 (Table 2).

Table 2. Data stationary Test Results using the Augmented Dickey Fuller Test

Variables	Decision	Coefficient Value
TOT	Stationer in the Level	0.00
INF	Stationer in the Level	0.00
GRDP	Stationer in the Level	0.00

TOT (farmer term of trade); INF (inflation); GRDP (gross domestic regional bruto)

In this study, the lag test method used was the Schwarz Information Criterion (SIC) method. Based on the results, it was concluded that the Farmer's term of trade was initially in the first Lag (Table 3).

The cointegration test is intended to classify groups of variables that are not stationary in the standard integration process requirements; Johansen's trace statistical test cointegration test was also used in this study. The main thing in this (ui) was testing criterion based on trace statistics. If it is found that the trace statistic value is greater than the critical value of 5%, it can be concluded that the alternative hypothesis is accepted (Table 4).

It was found that the trace test value gave an indication of the presence of all equations co-integrated with the others. Max eigen value indicated that there was one cointegrated equation. There are, however, other possible explanations for the farmer term of trade that can be found in a long-run relationship. From the analysis carried out using the Vector Error Correction Model test, it shows that there was a relationship between the farmers' term of trade (TOT), Inflation (INF), and GRDP (Table 5).

The Cointeq1 coefficient of variable value was 2.321007. The significant meaning is if both inflation variables and gross domestic product remain unchanged in the previous period, the farmer term of trade will have been negatively affected by -2.32% in the current period. This becomes a serious matter when economic growth must also remain in favor of the welfare level of the farmers. Seeing that the results of its production which is a main commodity requirement for the majority of Indonesian people, the farmers should also enjoy more yields from the commodities that they have produced.

Table 3. The Optimum Lag Test for Farmer Term of Trade

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-191.9250	NA	1.737892	9.066279	9.189153	9.111591
1	-165.8123	47.36721*	0.785313*	8.270340*	8.761838*	8.451589*
2	-158.7002	11.90857	0.863542	8.358151	9.218272	8.675337

Table 4. Estimation of Cointegration Test Results between Variables

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.551957	57.04430	29.79707	0.0000
At most 1*	0.300311	22.52102	15.49471	0.0037
At most 2*	0.153483	7.164873	3.841465	0.0074
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
None	0.551957	34.52328	21.13162	0.0004
At most 1*	0.300311	15.35615	14.26460	0.0335
At most 2*	0.153483	7.164873	3.841465	0.0074

These relationships may partly be explained by analysis results, i.e., farmers' term of trade had increasing effect on the coefficient of 0.6. This implies that, if there is a 1% increase in the farmer term of trade in the previous month, it will raise the farmers' term of trade by 0.6% in the current month. This is related to policies for improving the welfare of farmers. Especially for rice farmers, the government has provided fertilizer subsidies which are distributed to villages in East Java Province. But whether this is a benefit that can be felt by farmers is still a debate among the opinions of farmers personally (Maulana, 2016; Viswanathan et al., 2020).

Table 5. Variable Estimation Results Affecting Farmers' Term of Trade

Variables	Coefficient	t-statistics
Cointeq1	-2.321007	-5.18099
Short-term		
D(TOT(-1))	0.616020	1.70782
D(INF(-1))	-0.000920	-0.22581
D(GRDP(-1))	0.026908	3.22110
Long-run		
INF(-1)	-0.000521	-0.21805
GRDP(-1)	0.002528	1.23424
Coefficient of Determination (R^2): 0.81		

In the short-term, inflation in this case has a negative effect. Seen from the results of the analysis of the inflation variable, it had a coefficient value of 0.0009. That means that every 1% increase in inflation in the previous period, will have a decreasing impact on the farmer term of trade of farmers by 0.0009% in the current period.

Likewise, if viewed in the long term, inflation in this case has a negative effect on the farmer term of trade in East Java Province. This is following the results of the analysis where the inflation variable had a negative effect although not significant, with a coefficient value of 0.0005. This means that every 1% increase in inflation in the previous period will have a decreasing impact on the farmer term of trade rate of 0.0005% in the current period.

The results are not much different in effect. This is because the level of farmers' needs also increases when inflation occurs (Suryana et al., 2014). The diverse needs of farmers with inflation cause the index of the cost of living felt by farmers to also increase so that the index that must be paid by farmers also increases. The higher the index that must be paid by farmers, the more farmer's term of trade decreases. In addition, the inelastic nature of agricultural products (the elasticity of demand is less than one) causes agricultural production to be less responsive to price increases (Just, 1974; Saputra et al., 2014). Even if there is an increase of prices (inflation), the increase of the price of agricultural products is not proportional to the increase of prices for goods and services in the non-agricultural sector. With the inelastic nature of agricultural products, the index received is relatively lower than the index paid, so farmers are unable to cover the entire cost of living and as a result, FTT decreases (Miller, 2015). The declining farmers' term of trade will ultimately affect the welfare of farmers. It can be concluded that inflation can reduce the farmers' term of trade because it causes the index to be paid greater than the index received so that the welfare of farmers decreases.

If traced further, the farmers' term of trade in the means of production receipt is smaller than the farmers' term of trade in labor acceptance (Gupta & Mishra, 2018). This shows that food crop farming is a capital-intensive farming business with a higher level of expenditure for purchasing inputs than for paying labor wages. From the description of the term of trade of revenue for production inputs, it appears that the behavior of the farmers' term of trade of revenues on the costs of seeds, fertilizers, and medicines varied based on the area of arable land. The farmer's term of trade of receipt of fertilizers was relatively smaller than

the purchase of seeds and medicines. On the other hand, there was a tendency to narrow the area of arable land, causing the level of fertilizer use to tend to be higher. This fact is different from the farmers' term of trade of medicine acceptance, where with the increasing area of arable land, there was a tendency to use relatively fewer medicine.

The price index paid by farmers depends on two things, namely household consumption and production costs (Ong et al., 2013). Therefore, the policy related to lowering the most likely to be done is lowering production costs. In other words, for FTT to increase from year to year, the rate of increase in the index received by farmers must be faster (large) compared to the rate of price index paid by farmers, in this case, the production input of the agricultural sector. This means that the quantity and price of goods produced by the agricultural sector are attempted to increase, while the price of production inputs is attempted to increase at a slow rate. Meanwhile, the increase in the index paid by farmers is influenced by 1) a large increase in fertilizer prices, and 2) increased costs for labor both at the time of planting, maintenance, and harvesting, and post-harvest.

So, what can be said about the negative effect of inflation on the farmers' term of trade is the problem of price transmission (Lastinawati et al., 2019). The index that must be paid by farmers tends to be higher when inflation occurs. When inflation occurs, price increases at the retail level cannot be perfectly transmitted to the farmer level. This means that during inflation, retailers get a bigger price increase than farmers (Siahaan et al., 2018). Therefore, the index that must be paid by farmers is higher than the index of prices received. As a result of the price increase, the cost-of-living index that must be paid by farmers will even be greater and will ultimately affect the welfare of farmers.

The price increase that occurs tends to reduce the amount of the farmer term of trade. So, for conditions like this, it seems that letting prices rise is not a good way to improve farmers' welfare (Hermanto, 2017). In the future, the government must think of ways to make the increase in the price of agricultural products gives more benefits to farmers (this can be done, among other things, by improving farmers' access to markets). If this situation has been achieved, it is hoped that in the future the increase in agricultural prices produced by farmers will be able to improve the welfare of our farmers.

In contrast to the variable level of gross domestic product, in the short term, the level of Gross Domestic Product in this case had a positive and significant effect on the farmer term of trade. Gross domestic product had a coefficient value of 0.02. That means that every 1% increase in the gross domestic product of East Java province in the previous period, will have an added impact on the farmer term of trade of 0.02% in the current period.

Likewise, if viewed in the long term, the level of gross domestic product had a positive but not significant effect. The coefficient value of the long-run gross domestic growth rate variable was 0.0025. This can be interpreted that every 1% increase in the level of gross domestic product in the previous period will have an additional impact on the farmer term of trade rate of 0.0025% in the current period. This condition is caused by an imbalance in the implementation of economic development, especially in the agricultural sector where the majority of the benefits are still very small and can be felt by farmers (Sari, 2020). Especially in the long term, the guarantee of a prosperous and decent life is highly expected for the farmers despite the onslaught of the industrialization era that continues to be echoed (Ma et al., 2008). This is the cause of the small influence of regional gross domestic product on the level of welfare of farmers in the province of East Java.

The agricultural sector also contributes significantly to the growth of gross domestic product in the province of East Java (Wibowo, 2020). It is noted in this case that the agricultural sector as a whole contributes 10% of the gross Regional Domestic Product (BPS, 2020). East Java province, the majority of which still depends on the agricultural sector, makes this an advantage for regional income and also a positive economic existence in the future (Bappeda Provinsi Jawa Timur, 2015). Even so, the magnitude of this contribution does not have a significant effect on the welfare of the farmers (Patiung, 2019). This is due to the imbalance between the level of farmer input and the output issued. This causes farmers to spend more on consumption compared to their production, while the selling value of the products produced by farmers is still not able to offset consumption costs. As with lowland rice agricultural products, when they are sold by farmers, the price will be different when they are purchased for consumption in the form of rice, so

the consumption costs are greater than the selling value of their production. The amount of consumption value and selling price will eventually increase the value of GRDP, but the farmers' term of trade does not have a real effect.

One of the policies in the agricultural sector that can be implemented is how to make farmers want to try to grow food crops with guaranteed prices after harvesting. Generally, farmers will automatically produce goods if the price of these goods is guaranteed to increase. Many things contribute to the low prices received by farmers, including the length of the trade chain so that the margins obtained by farmers are small. Therefore, it is necessary to cut the chain of commerce. For example, by increasing the role of Regional Business Cooperatives as a buffer stock by buying agricultural commodities at harvest time according to the government purchase price and selling goods during a famine. Another effort that can be made by local governments to stabilize prices or even increase prices of agricultural products is to provide knowledge to farmers on how to handle agricultural products or post-harvest handling so that there is added value received by farmers, especially for the rice sub-sector whose conditions are vulnerable to fluctuations. The real role of the government in this matter can be done by ensuring that production factors at affordable prices must be carried out. The availability of fertilizer during the growing season must be done so that farmers can easily get it. This needs to be done because the scarcity of production factors when needed will make the prices of production factors rise.

Mathematically, to increase the farmers' term of trade is the expectation of increasing the price index received by farmers and decreasing the price paid by farmers. Policies related to increasing the index received by farmers are increasing the quantity of production and increasing the prices of agricultural commodities. This means that agricultural policies are not only meant to spur production growth, but also income growth or farmer welfare. Increasing the quantity of production can be done with three alternatives, namely intensification (increase in productivity), extensification (expansion of planting area), and increasing cropping intensity for seasonal crops.

In addition, a program to improve the welfare of farmers is made. This program aims to increase the capacity and competitiveness of the agricultural community, especially farmers who cannot have access to agricultural business resources. The main activities to be carried out in this program are (i) revitalization of the agricultural extension system, which needs to be intensively coordinated with local governments, both provincial and district; (ii) improvement in terms of strengthening agricultural institutions. Geographically, the majority of farmers are in rural areas to increase growth in order to increase the bargaining position of local farmers' products; (iii) simplification of support mechanisms for farmers and reducing agricultural business barriers; (iv) education and training of agricultural human resources; (v) protection of farmers from the unfair business competition and unfair trade; and (vi) development of poverty alleviation efforts.

Looking at the indicators of GRDP in the Agricultural Sector and farmers' term of trade is not enough to see the level of farmers' welfare because they are still on the macro-level (Septiadi et al., 2016). The problem of farmers' welfare cannot be solved simply by increasing the economic growth of the agricultural sector alone; it requires equitable development in all sub-sectors of agriculture so that the results can be enjoyed by farmers.

Research Implication

In this case, one of the macroeconomic indicators, namely inflation, has the largest proportion and has a long-run impact on influencing the term of trade of farmers in East Java Province. Compared to the costs found by farmers received by farmers' inability to meet agricultural needs based on agricultural commodities. If the farmer's term of trade is low, the ability of farmers to carry out household consumption will also be low. It is can be an obstacle for our farmers. This can be seen in the last three years when the annual decline in the term of trade of farmers experienced. The COVID-19 pandemic and global economic uncertainty must be paid attention to maintain the economy, especially inflation. Besides impacting many sectors in general, this can threaten the level of farmers' term of trade. Assistance is necessary in terms of the production factor or social community, especially for people who work as farmers. It aims to provide full protection to farmers in improving their welfare.

Efforts can be made in the form of agricultural development with various policies and programs such as increasing production and stabilizing food supply

and prices to improve welfare. Policies in the context of agricultural development have been believed to be an effort to increase production output, increase the rural economy and fulfill the needs of rural consumers.

Economic growth that is based on the agricultural sector for the sake of increasing the goal, i.e., the welfare of farmers will be very useful to measure the impact of development that has been carried and intended to increase the welfare of farmers so that it can be an input for the implementation of further agricultural development. Detailed knowledge of the behavior of the farmers' term of trade, including the factors that determine how much the farmer's term of trade is in the short and long term, will be very useful for planning agricultural development policies in the future.

In addition to this, global uncertainty has further clouded the harmonization of the agricultural sector. The agricultural sector can be used as support for economic growth. There is an advantage when compared to other regions. Therefore, economic growth must be based on the welfare of the farmers so that the agricultural sector can contribute to facing the current economic uncertainty. In addition, economic growth which has been leading to the industrialization sector by leaving the agricultural sector a little will be a challenge in the future. The need for millennial farmers, for example, is one indicator of the decline in the agricultural sector in the future. Many actors in the agricultural sector are dominated by the baby boomers, who were born from 1946 to 1964. S,o it is very difficult to find regeneration as the successor to the baton in the agricultural sector today.

Even so, East Java Province will not be separated from the main role of the agricultural sector in increasing economic growth. Although the direction of economic growth is not always dominated by the agricultural sector alone. This is one of the objectives of changing the structure of the economy that leads to an increase in the share of the non-agricultural sector. The implication of this effort is in the form of a decrease in the farmers' term of trade in the agricultural sector.

The impact of the decline in the farmers' term of trade will be overcome by synergizing the industrial sector with the agricultural sector. The industrial sector will have an impact on increasing demand for the agricultural sector through quality improvement and product diversification. In addition, processed agricultural products also have a greater elasticity of demand for income when compared to primary agricultural products. Thus, the development of industrialization will be able to prevent the downward trend or even increase the demand for agricultural products. Until the hope is to increase the farmer term of trade even better.

Once again, to increase farmers' income, the government must intervene to prevent or at least slow down the secular decline of farmers' term of trade in the agricultural sector. One way that is considered the most appropriate for this is to develop the agro-industry. The development of the industrialization which is not closely related to the agricultural sector will accelerate the decline in the rupiah term of trade in the agricultural sector, which means that it will worsen in farmers' income.

This finds a finding where inflation is an indicator of the welfare of farmers in East Java Province. Economic improvement, it turns out that can provide a solution to the low welfare of farmers.

CONCLUSION AND SUGGESTION

Inflation in both the short and long term has a negative effect on farmers' terms of trade. Agricultural commodities, especially rice, are oriented to the supply and demand side, so they are very vulnerable to the impact of inflation. The resilience of the welfare of farmers must be prioritized by ensuring that production costs are affordable and the cost of necessities is controlled to ensure that inflation does not have a negative impact on the welfare of farmers. This is different from the growth rate of regional gross domestic product which has a positive impact on increasing farmers' term of trade. Existing economic growth must still be in favor of the level of farmers' welfare by providing affordable input factors and trimming the distribution channel of these commodities so that the cost factor incurred can be smaller so that profits can be more in favor of the farmers.

A decrease in the farmer's term of trade certainly has an influence on the ability of farmers to meet their daily needs. This is exacerbated by the COVID-19 pandemic and global economic uncertainty which must also be paid attention to in maintaining economic stability and inflation. Besides impacting many sectors in general, this crisis can threaten the level of farmers' term of trade. Policies in the form of protection both

in terms of production inputs must continue to be encouraged in ensuring the welfare of farmers, in which it aims to provide full protection to farmers in increasing production and welfare levels.

The role of the government is to prevent or slow down the secular decline in the farmer's term of trade in the agricultural sector, by developing agro-industry which is closely related to the agricultural sector.

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Factors affecting expenditure and income of small fisherman households: Evidence from Jember, Indonesia

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ABSTRACT

Small-scale fishermen from Watu Ulo, Jember, Indonesia use very simple fishing gear and small boats use nets. Thus, they receive a low catch and affect their well-being. This study aims to analyze the factors that can affect the income and expenditure of fishers' households. This study interviewed fishermen in Watu Ulo Hamlet, Ambulu District, using simple random sampling. The analytical method in this study used the Two-stage Least Square (2SLS) method to estimate the parameters of the equation. The results showed that the fishing income was influenced by the selling price of the fish and fishing production. Non-fishing income was influenced by total household income and fishermen's education. Husband's work at sea did not affect non-fishing income. Meanwhile, there were two factors that affected fishermen's household expenditures. Food expenditure was influenced by total household income, number of family members, and rice expenditure. Moreover, non-food expenditure was influenced by total household income, the number of schoolchildren, and customs. This study suggests that fishermen need to diversify their income sources into processed goods so that they can be sold in markets or shops. Such effort can increase the income of fisherman households.

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INTRODUCTION

The fisheries and marine sectors are one of the factors that contribute to production in coastal areas because they can increase the economic income of local communities (Voyer et al., 2017). As an archipelagic country, Indonesia has vast coastal areas which are inhabited by about two million fishermen and farmers. Based on data (BPS, 2021), Indonesia's fishery production potential has increased from 807,788.48 tons in 2018 to 816,945.30 tons in 2019 while East Java's fishery production in 2019 was 121,707.10 tons whereas previously in 2018 was only 114,811.20 tons. Jember Regency fishery production in 2020 reached 9,784.90 tons.

Jember Regency has a lot of potential natural resources. This is proven by the fact that Jember Regency has an area of 3,293.34 km^2, divided into 31 sub-districts. Five of them have coastal areas scattered along Ambulu District. One of the hamlets in Ambulu District is Watu Ulo Hamlet, Sumberejo Village where the majority of the people work as fishermen. The resources of the fishery sector have the potential to be the main driver of the national economy, but currently this potential has not been managed optimally (Arnawa et al., 2017).

There are many types of fishermen, and the traditional ones generally use simple fishing gear to catch fish (Rahim & Hastuti, 2018). According to Gebremedhin et al. (2013), they use simple fishing gear in fishing and boats that do not exceed 5GT (gross tonnage), including outboard motors and motorless boats. The fishing business is carried out by the head of the household with outboard motor support with a power node (PK) which is equipped with modern fishing gear to reach the fishing ground as a fishing area in the Exclusive Economic Zone (Rahim, Hastuti, & Bustanul, 2018). Watu Ulo Hamlet is not quite accessible because it must be reached by land, while the roads are small and no public transportation is available nearby. The people's eating habits depend on the results of the harvest. Usually, people eat tuna everyday. The job of fishermen in Watu Ulo Hamlet is seasonal, causing them to have inconsistent income and be unable to meet their daily needs. Therefore, traditional fishermen are characterized as poor (Etuk et al., 2015). According to Ahdan et al. (2019), poverty in fishing communities is still growing every year. It is necessary to have innovations to empower fishermen to overcome poverty, one of which is increasing fishermen's income through their catches. Excessive exploitation of aquatic resources coerces people to fall into poverty. However, if managed properly, aquatic resources will be able to reduce poverty and increase income (Lynch et al., 2017). An increase in a community's welfare is said to occur if the community is sufficient to meet the basic needs of life. This means that food, clothing, housing, education, health, safety, and so on are available and accessible to every citizen, thereby reducing the number of poor people (Lein & Setiawina, 2018).

The strategy to improve the household life of fishermen in coastal areas through poverty alleviation needs to be done by reducing spending during the fishing season (Susilo et al., 2021). Consumption expenditure of each household is related to maximizing utility in consuming goods and services at prices and income levels (Hastuti et al., 2021), and the need for adaptation of poor farmer households so that it will have an impact on people's livelihoods and food security (Alam et al., 2016).

Several researchers have also studied the behavior of fishermen's households through the economic approach of fishermen's households, including Pramyastanto et al. (2013) and Susanti (2019) who analyzed the factors that affect the food security of poor households who work in the marine capture fisheries sub-sector. They analyzed the factors that influence the income and expenditure of the *payang jurung* fishermen in the Madura Strait and their household economy. Likewise, research by Lein & Setiawina (2018) studied the factors affecting production costs, technology, selling prices, and fish catches on the income of fishermen in Flores Timor Regency. It is supported by research conducted by Firdaus & Rahardian (2015) that one of the efforts to increase household income is by increasing the participation of fishermen's wives and family members in work (Rahim et al., 2018). Based on the previous explanations, it is necessary to conduct a household economic model study that aims to identify and analyze the factors that can affect the income and expenditure of fishermen households in Watu Ulo Hamlet, Sumberejo Village, Ambulu District, Jember Regency.

RESEARCH METHOD

This study was conducted in Watu Ulo Hamlet, Sumberejo, Ambulu, Jember. The determination of the research location was carried out intentionally based on the consideration that Watu Ulo Hamlet is a coastal village in Ambulu District with the largest number of capture fisheries production and the number of small fishing households (<5GT). The criteria for the respondent selection were fishermen with boats <5GT and carried out fishing activities independently without the help of crew members (ABK). The population of small-scale fishermen was 313 small fishermen. The probability sampling technique using simple random sampling was chosen to determine the number of samples as many as 38 small fishermen. This technique was chosen because the population in small-scale fishing households has relatively the same household economic behavior (homogeneous). In the central limit theorem, a relatively homogeneous population is distributed close to normal with the sample size n≤30 (Placeholder2). The data analysis used in this study was the econometrics method. The inferential statistical analysis method was used to analyze the Two-stage Least Square (2SLS) sourced from household economic theory (Adelekan & Omotayo, 2017). The stages of household economic model analysis were specification, identification, and estimation.

Model specification addresses the relationship between following variables:

Marine Production (PM)

$$PM = a0 + a1\,BBM + a2\,IC + a3\,PKM + a4\,TBGN + u1 \quad (1)$$

Husband's income from fishing (RRTN)

$$RRTN = b0 + b1\,BBM + b2\,PM + b3\,BOM + u2 \quad (2)$$

Husband's non-sea income (RRLN)

$$RRLN = c0 + c1\,PTN - c2\,THOK + c3\,PN + u3 \quad (3)$$

Food Consumption Expenditure (PRTP)

$$PRTP = d0 + d1\,PTN + d2\,JAK + d3\,PB + u4 \quad (4)$$

Non-Food Consumption Expenditure (PRNP)

$$PRNP = e0 + e1\,PTN + e2\,JES + e3\,AIS + u5 \quad (5)$$

Total Household Expenditure

$$TPR = PRTP + PRNP \quad (6)$$

Household Surplus

$$TBGN = PTN - TPR \quad (7)$$

In which PM is Fisherman's fishing production (kg), BBM means fuel price (IDR), PKM is experience at sea (Years), IC is amount of sea ice (bar), TBGN is household surplus (years), RRTN is fishery household income (Rp/year), HJI is selling Price of Fish (Rp); BOM is fishing operational costs (Rp/year), RRLN is marine fuel oil (liters/year), PTN is husband's income from fishing (Rp/year),THOK: Total outpouring of non-sea time (Time); PN is fisherman's education (years), PTN is total income of fisherman's household (Rp/year), PRTP is fisherman's household food expenditure (Rp/year), TPR is total household expenditure (Rp/year), PB is rice expenditure (kg), JAK is number of family members (persons); AIS is mores (Rp/year), JES is number of school children (persons).

The results of model identification show that all structural (behavioral) equations proposed were over-identified. According to Panjaitan et al. (2019), when the identification of structural equation model with order condition and rank condition, so simultaneous equation model is over-identified, and the parameter estimation is carried out using the 2SLS (Two-stage Least Square) method. The data processing of this research used the STATA program. The results of the identification of fisherman household economic models are presented in Table 1.

Table 1. The Identification of Fisherman Household Economic Models

Variable	K	G	M	K-M	G-1
Marine Production	17	8	3	11	7
Income Husband Household	17	8	2	12	7
Husband Non-sea Income	17	8	3	11	7
Food Production	17	8	4	10	7
Non food expenditure	17	8	3	11	7

Note: Models are over identified

The fisherman household economic model that has been formulated consists of equations where K=17 and G=8 (Table 1). Based on the order condition criteria, it can be concluded that every structural equation contained in the model was over-identified and estimated using 2SLS.

RESULT AND DISCUSSION

Characteristics of Respondent

The characteristics of respondents are in regards of the household conditions of the Watu Ulo, Ambulu, Jember. The characteristics of respondents described in this study included head of household, age, and education.

Table 2. The Characteristics of Respondent

Description	Frequency	Proportion
		%
Gender		
Female	0	0
Male	38	100
Age		
21-30 years	4	10.5
31-40 years	11	28.9
41-50 years	16	42.1
>50 years	7	18.4
Education		
No completed	21	55.2
Primary school	11	28.9
Junior High	3	7.8
High school	2	5.2
Bachelor	1	2.6

Table 2 shows that the households of the Watu Ulo, Jember Regency with Overview of Respondents based on gender above, of the 38 respondents studied, all of them or the equivalent of 100% are male, and 0 respondents or equal to 0% are female. It can be concluded that the heads of fishing households in Watu Ulo, Sumberejo Village, who were the majority of research respondents are male. This shows that men have the thought of working and providing a living for all household members. The only source of living for the households in Watu Ulo Hamlet

is from fishing. While fisherman's work is full of risks, it is done just like that. This is also an argument that fishing is done by men because it has a very high risk. Being a fisherman is not only a livelihood but it is the only way of life. Therefore, in general, these fishermen will pass on the tradition of catching fish to the next generation even though their livelihood is marginal. People in their productive age are more productive and considered to have high enthusiasm for doing a job. Respondents who were heads of households and worked as fishermen were quite dominant, namely at the age of 40-50 years with a total of 16 people or 42.1%. Moreover, minority respondents were heads of households working as fishermen with the age of 21-30 years, as few as 4 respondents or 10.5%. This shows that the age of 40-50 years is a productive age for fishermen to work. According to Bastari et al. (2015), productive age is the age of respondents who are in the range of 16-50 years and non-productive age is in the range of 1 year and 15 years. In the field of fishery, most household heads who feel they are still strong enough to work also continue to carry out fishing activities at sea, even when it is just helping with their children, relatives, neighbors, or crew members. This is done to meet the needs of household life. The heads of households were dominated by those with no formal education, i.e., 21 out of 38 people. The average education of fishermen was very low. Based on data in the field, since childhood, fishermen's children were often taken to sea by their parents.

Small Fisherman's Household Economic

The results of statistical tests on the economic model of small fishermen households, the coefficient of determination (R2) and probability-F values are shown in Table 3.

Table 3. Statistical Criteria of the Small Fisherman's Household Economic Model.

Variable	R^2	Prob-F
The Marine Production (PM)	0,4019	0,0016
Husband's Income (RRTN)	0,7657	0,0000
Husband Non-sea Income (RRLN)	0,8032	0,0000
Household Food Expenditure (PRTP)	0,4194	0,0003
Household Non-Food Expenditure (PRNP)	0,3112	0,0050

Table 3 shows the five structural equations in the small fisherman household economic model using the value of R2 (coefficient of determination) varying from 0.4019 to 0.7657. The relationship between exogenous variables and endogenous variables are theoretical based, and the causality of the variables also considers the economic criteria; therefore, the sign is very critical. The numbers of the estimation coefficient of the function parameters are the finding of this research, elaborated with the reality in the research location.

Marine Production. The marine production equation was affected by the cost of marine fuel (BBM), the amount of ice (IC), and household surplus (TBGN) (Table 4)

Table 4. Estimate Variable Affecting Marine Production

Variable	Coefficient	t	Sig.
Cost of fuel (BBM)	0.000139	1.39	0.174
Amount of ice (IC)	47630	1.93	0.062
Experience at sea (PKM)	0.33536	2.12	0.042
Household surplus (TBGN)	0.000145	1.15	0.620

The cost of fuel (BBM) at sea had a positive effect on fishermen's production. This means that the greater the expenditure on fuel costs, the greater the opportunity for fishing production. This is because the increase in fuel costs causes the reach of fishing areas to be wider and fishermen do not return home too early, increasing total production. According to Hamzah et al. (2017), the increase in the price of fuel (BBM) has a positive impact on profit for the fishermen in North Galesong District, Takalar, South Sulawesi Province. The farther the fishing ground or fishing areas, the more fuel used by motor boats, proportional to the power capacity of the ship. It is based on the research that stated the greater the cost of fuel at sea, the greater the chance of the catch, because marine fuel can increase the number of fish caught by fishermen. Rizal et al. (2021) revealed that generally, the distance of fishermen to the fishing ground area is getting further away, not getting closer, so the amount of marine fuel needed is increasing. However, the cost of marine fuel did not have a significant effect at the level of 5-15% on marine production. Based on the field data, fishermen often had a shortage of diesel fuel supply. Besides, the distance between the fuel station and fishermen was quite far so fishermen often bought retail fuel at a higher price. The amount of ice had a positive and significant effect on marine production. The more the amount of ice used for fishing, the more fish were caught at sea. The increase in the use of ice increased the catch of fishermen. Ice cubes are important to keep the freshness of the fish caught so that the quality and quantity of fish do not

decrease. The use of ice is carried out from when the fish is caught until it lands to maintain the freshness and the quality of the caught fish. The experience of fishermen had a positive and significant effect on fish production. This means that if work experience increases by 1 year, fish production will increase. This statement is confirmed by Chowdhury et al. (2014) that a person's productivity is influenced by the fishing experience of a fisherman. The longer the experience at sea, the more production at sea, because fishermen already have expertise in catching fish. Besides that, fishing experience also affected the average amount of income earned. If the work experience increases, the income from the catch will increase. The level of work experience can affect the amount of income received by fishermen in landing operations (Yasrizal, 2018). TBGN or fisherman household surplus had a positive effect on fish production results. This suggests that the increased household surplus will be used to increase catch production. Based on the theory that there is excess household income, most of it is used for marine production activities such as adding assets by buying new machines and boats. The results of research conducted by (Yasrizal, 2018) stated that one of the factors that increase production at sea is the number of ships. The difference between motor boats <5GT and >5GT will have an impact on the distance traveled to the fishing area (Halim et al., 2019). However, the household surplus did not have a significant effect at the level of 5-15% on marine production. Based on the results in the field, if there was a household surplus, fishermen tended to use the excess income to pay debts or installments, saved it in the form of gold, paid the children's education fees, and others. According to Budiarti et al. (2021), the remaining income of fishermen is used to pay debts to moneylenders during the lean season (bad weather) or there are big waves and strong winds because fishermen cannot go to sea to catch fish.

Husbands Income. The husband's income from fishing was affected by the selling price of fish (BBM), fishing production (PM), and fishing operational costs (BOM) (Table 5).

The selling price of fish had a positive and significant effect on fishermen's income. This means that the more fish caught at sea, the greater the income of fishermen at sea (Supriyadi & Athon, 2020). The main problem often found by fishermen in East Flores Regency is that the selling price of fish will affect their income. If the selling price of fish is high, income will increase. Whereas, the selling price of fish depends on the season and type of fish. Based on field data, the commodities often caught were tuna, lemuru, and layur fish.

Table 5. Estimate Variable Affecting Husbands' Income

Variable	Coefficient	t	Sig.
Price of fish (HJI)	2417.696	2.81	0.008
Fishing production (PM)	15.91825	6.57	0.000
Operational costs (BOM)	-.1535956	-0.86	0.395

Mitra et al. (2021) stated that the size of the fish determines the market price of fish. If the size of the fish is larger, the selling price of the fish will be high, and the income will be large as well. Therefore, the quality of fish must be maintained by such means as processing, drying, and salting, considering that if the quality of fish is good, it will add value to the fish. Thus, it affects the high selling price of fish species and the elasticity of demand prices (Kruijssen et al., 2020). Fishing production had a positive and significant impact on fishermen's fishing income. This shows that the greater the production at sea, the income of fishermen at sea will be even greater. Based on data in the field, fishermen caught not only fish, but also baby lobster. Baby lobster is a better commodity even though the action is prohibited by the government (illegal fishing). Fishermen hunted baby lobsters because the selling price in the market was very high, reaching IDR 40,000 for one baby lobster, and every day they could catch hundreds of them. The use of fishing gear for baby lobster was very environmentally friendly, by using coconut skin (ijuk), but if this practice is continued, it will threaten the species to extinction and bring damage to environmental sustainability. In line with research conducted by Maskun & Ilmar (2020), the cultivation of baby lobster is very minimal because food in the form of pelagic fish is difficult to find, and if it is cultivated, it can reduce the added value obtained by fishermen. Catching baby lobsters is prohibited because Indonesia has entered the category of the Fisheries Management Area of the Republic of Indonesia (FMA-NRI) 712 So 4 FMA-RNI Full Exploited and 7 FMA-RNI in the Over-Exploited category.

The operating costs of fishing had a negative and insignificant effect on fishing income. This shows that the greater the operational costs at sea, the less income from fishing obtained. Operational costs at sea consisted of the cost of fuel (BBM), ice cubes, and eating and drinking such as coffee and tea. This

finding supports research by Supriyadi & Efani (2020) that the operational costs of fishing harm fishermen's income. An increase in operating expenses will reduce income, leading to the inefficiency of fishermen's performance and losses in the business activities (Jumirin & Lubis, 2018).

Husband's Non-sea Income. The husband's non-fishing income was affected by total household income (PTN) and husband's outpouring of work at sea (HOK) and Fisherman's Education (PN) (Table 6).

Table 6. Estimate Variable Affecting Husband's Non-sea Income

Variable	Coefficient	t	Sig.
Total income (PTN)	0.802338	11.76	0.000
Husband's outpouring (HOK)	-16343.4	-1.21	0.234
Education (PN)	462281	1.78	0.084

The total income of fishermen's households had a positive and significant effect on non-fishery income. This means that the total household income increases as a result of the increase in non-fishing income. This shows that non-fishing income is one of the variables that make up the total income from fishing. Supriyadi & Efani (2020) stated the source of total household income is the sum of the income of fishing and non-fishing households including husbands. The husband's labor at sea had a negative and insignificant effect on non-fishing income. This means that if the husband's work at sea increases, the income of non-fishing husbands will decrease. This shows that the variable of the husband's work outpouring at sea is inversely proportional to the income of non-fishing husbands. This is in line with research of Supriyadi & Efani (2020) that the husband's outpouring of work at sea has a negative sign on the income of the husband at sea where the change in the variable of the husband's work at sea is the income of the husband at sea.

Husband's education had a positive and significant effect on non-fishing income. This shows that an increase in 1 year of a husband's education at sea will increase the income of non-fishing husbands. Based on the results in the field, there were two types of work: formal and informal. Formal education requires a high diploma and informal education does not require a high diploma. Most of the respondents had informal jobs like parking attendants, shopkeepers, construction workers, grocery workers, and shopkeepers on the beach. Turcinkova & Stávková (2012) stated that a household with a higher education level will be in a better situation than the household category with a lower education level. Meanwhile, research conducted by Ramadhona (2021) showed that fishermen's low education is caused by accessibility, facilities, infrastructure, and cost constraints. However, the main job as a fisherman only requires non-formal education which includes skills, creativity, fishing experience, and suitable time for fishermen.

Household Food Expenditure. The food consumption expenditure in this study consisted of total household income (PTN), husband's work outflow at sea (JAK) and rice expenditure (PB) (Table 7).

Table 7. Estimate Variable Affecting Household Food Expenditure

Variable	Coefficient	t	Sig.
Total income (PTN)	.0096487	0.32	0.754
Husband's work (JAK)	857408.6	3.10	0.004
Rice expenditure (PB)	1.246827	4.59	0.000

Total income had a positive effect on food expenditure. This shows that the greater the total income of fishermen's households, the greater the allocation of income to meet the needs of food consumption. However, total income did not have a significant effect at the 5-10% level on food expenditure. Based on field data, the increase in fishermen's household income on food consumption expenditure did not make fishing households consume food excessively, meaning that fishermen's household dishes are quite simple, such as rice, fish, and vegetables. They consumed substitutes for rice and fish which were obtained from the sea, not from purchases.

According to Yolandika et al. (2021), most of the income received by fishermen is used for food consumption and daily needs. They assumed that there were many other expenses to meet their needs such as paying installments/debts, buying nets, etc. Donkoh et al. (2014) stated that if household income increases, the percentage of food spending is smaller because most of it goes into non-food or other non-essential goods. Then, the number of family members had a positive and significant effect on food consumption expenditure. This means that the increase in household size per unit (person) affects large food consumption expenditures. Based on Keynes' theory, as the population increases, the quantity demand of goods increases. This research confirms the statement by Min et al. (2019) that increasing the size of family members will increase

food expenditure. Households tend to increase their consumption of food such as grains, meat, goat, and fruits. Meanwhile, according to Faradina et al. (2018), the number of family members affects the allocation of household expenditures. A bigger number of household members requires additional food intake which of course costs money. Rice expenditure had a positive effect on food consumption expenditure. This shows that the more rice consumption costs, the more food consumption expenditure. Households with an older age tend to consume more rice than households with younger age. In Upazila, Bangladesh, people consuming rice had increased higher in the last 7 days in 2021, so adopting rice will tend to experience an increase in profits (Bairagi et al., 2021).

Household Non-Food Expenditure. The non-food consumption expenditure in this study was affected by total household income (PTN), Number of School Children (JES), and Customs and Tradition (AIS) (Table 8).

Table 8. Estimate Variable Affecting Household Non-Food Expenditure

Variable	Coefficient	t	Sig.
Total income (PTN)	0.0644204	2.20	0.034
Number of School Children (JES)	774042.3	2.84	0.008
Customs and Tradition (AIS)	1.67382	2.14	0.039

The total income of fishermen's households had a positive and significant effect on non-food consumption expenditures of fishermen's households. This means that the more total income, the more non-food expenditures. Based on field data, fishery income included fishing activities and non-fishing jobs such as fishing gear sellers, net maintenance workers, construction workers, shopkeepers, grocery stores, parking attendants, and fish service deliverymen. Most of the people with surplus income during the fishing season were mostly used to buying gold, but during the lean season, they sold it to fulfill their needs or pay their debts. Massaid et al. (2019) argued that higher income means a greater non-food expenditure, thus reflecting a decrease in poverty levels. If the non-food per capita expenditure is equal to or more than 0.47 million rupiahs, an increase of one million rupiahs of non-food per capita expenditure can reduce the percentage of poverty in Indonesia by 68.71%.

The number of school children had a positive and significant effect on non-food expenditure. This means that the greater the number of school children, the greater the non-food expenditure. Based on data in the field, spending on education costs was relatively high even though the families received operational funding assistance from schools. Fisherman households still bore educational costs such as purchasing student worksheets and paying the rest of tuition fees. The average levels of education of fishermen's children were elementary, junior high, and high school. This supports the opinion by Supriyadi & Efani (2020) that the relationship between the number of school children and non-food consumption expenditure has a complementary relationship which is indicated by a (positive) sign. Jannah et al. (2021) stated that families with a larger number of school children will make the expenditure allocated for education even greater. Fishermen have a view to financing the children of fishermen to a higher level (Purwanti, 2010). The traditional ritual of *petik laut* had a positive and significant effect on non-food expenditure. This means that increasing customs in the form of sea alms will affect non-food expenditures. Based on the data in the field, it is clear that the community respected the existence of *petik laut* which is carried out at the beginning of every *syuro* month as a form of gratitude that they had been given abundant results. Isnaeni (2020) stated sea alms in Java is a tradition that must be carried out by fishermen as a form of gratitude, blessing, and salvation from God Almighty. Fishermen carry out sea alms rituals and offerings which show that fishermen have a high work ethic in carrying out fishing activities. Although the work ethic is acknowledged, fishermen tend to be pessimistic, wasteful, consumptive, and not confident (Yoke & Chan, 2018).

Research Implication

The government always pays great attention to the small-scale fishermen as a group of people who are poor, marginalized, and vulnerable to social and economic shocks, thus requiring some level of social and economic support and protection (Halim et al., 2019) by Article 34 (2) of the Constitution that the Indonesian government is obliged to provide support and protection to the poor and underprivileged such as fishermen in order to be able to carry out sustainable fisheries management. Meanwhile, in Bangladesh, government emphasizes increasing blue growth and achieving sustainable development goals. The Bangladeshi government has fishery prospects and challenges to strengthening the national economy

and the need for international standards. They carry out environmentally friendly programs by establishing fish sanctuaries, improving community biological management water bodies, ensuring access of poor fishermen to fish farming, improving open water capture fisheries, promoting the private sector, and improving marketing system (SDGs) (Shamsuzzaman et al., 2020)

The income obtained by fishermen in Jember Regency, especially in the research location, comes from fishing results plus income outside of fisheries which has an impact on spending on meeting family food needs. The income of fishermen is based on the size of the volume of catch and some other factors that is the selling price of fish, technology, and the catch of fish. Needs are said to be sufficient if there is food availability, food security, food access, and food quality in a sustainable manner (Bene et al., 2016). The fisherman's dietary preferences have a high energy density in fish consumption compared to vegetable consumption. The fish itself is obtained from the catch at sea so there is no need to spend a lot of food (Kim & Seung, 2020).

The contribution of fishery to household income in the Watu Ulo Hamlet, Ambulu District, Jember Regency, is still very dominant. This is because most fishermen who live in rural areas depend on fisheries for their livelihood. The amount of wages earned by fishermen is formed as a result of the high risk of the catch and the price of fish at that time. The number of wages received will affect the level of fishermen's welfare (Hendrik et al., 2020). Marimuthu et al. (2015) explained that traditional fishermen have the only source of income since they do not often participate in activities not related to fisheries, meaning that the source of income is from fisheries only. The level of fulfillment of family consumption needs and other needs is largely determined by the income received. This condition affects the welfare level of labor fishermen (Lubis et al., 2021).

Fishermen in Jember Regency, especially in Watu Ulo Hamlet, are not only looking for fish, but most of them are looking for baby lobster. Whereas, the Ministry of Maritime and Fisheries Affairs has issued a policy that expressly states the prohibition of catching lobsters that are laying eggs and lobster weighing less than 200 grams, or categorized as baby lobster. Thus, the issued policies need to be implemented to maintain the existence and availability of the lobster resource population which is increasingly threatened, even though the baby lobster can increase the income of fishermen (Maskun et al., 2020). They move from one (Taufique, 1997) body of water to another to increase income. Thus, when income in a particular body of water declines the fishermen move to one where the expected income is higher. In addition, it shows that the income from fishermen is generally not low because it is determined by the experience of fishermen, the number of fishing assets they have, and by the quality of the water they access.

Based on Law No.16/1964 Article 3, paragraph 1, which explains that the Government of Indonesia regulates the legal basis for fishery product sharing as stated in this law, but it is in fact not yet fully upheld. According to Aida et al. (2020), the pattern of the patron-client relationship as a tool of exploitation subtly occurs in a poor economic condition where fishermen are often forced to borrow money and other daily necessities from traders or collectors and even moneylenders. As a result, the borrower has an obligation to the owner or merchant. The obligation includes the need to sell to traders or skippers. It needs to be avoided because it makes life worse, as the families get stuck with a wasteful and excessive culture. Therefore, it is recommended that the government provides support to local institutions to become a forum for fishermen in rural areas to empower them and improve the welfare of the fishing community (Wekke & Cahaya, 2015).

CONCLUSION AND SUGGESTION

The factors that affect the income and expenditure are presented as follows. Fishing income is influenced by the selling price of fish and fishing production. Operational costs do not affect fishing income. Non-fishing income is influenced by total household income and fishermen's education, while husband's work at sea does not affect non-fishing income. Food expenditure which is influenced by total household income, number of family members, and rice expenditure. Meanwhile, non-food expenditure is influenced by total household income, number of schoolchildren, and customs.

Suggestions that can be conveyed in the findings of this study are for the households to empower catch management to maximize catch potential and to increase the added value of local fishery products and have an impact on increasing the household income. Furthermore, to encourage an increase in the

fishermen's income, it is expected that Jember Government especially its Fishery Department provide guidance and give more attention and support to the welfare of fishing households and development of technological improvement capability in fishing with the right technology by increasing the catch to have an impact on increasing the income and reducing the expense of the household.

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Perceptions of tourism destination and implications for environmental education: Findings from a student field study on protected area, Indonesia

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ABSTRACT

University students have an essential role in developing ecotourism services and supporting environmental education. The research aims to explore students' perceptions of the object of tourism, group behavior in travel and problems in tourist destinations. Surveys and interviews were conducted on students who conducted a field study in Coban Tengah tourism destination, Indonesia. Students of Undergraduate (S1) and Master's (S2) programs were interviewed regarding tourism objects, group interactions, and problems found in the tourism site. Descriptive analysis and chi-square statistics were carried out to meet research objectives. The results revealed that students show a positive and significant perception of the beauty of Coban Tengah waterfall. S1 students indicated the halo effect phenomenon in perceiving tourism objects regarding beauty, educational element, and trekking paths. Grouping in tourist travel provides benefits to protect or keep safety and serves as a place to discuss environmental conservation. S2 students are less interested in forming groups because they have more experience and independence in travel than S1 student. Groups build cooperation and empathy, and these can provide innovation for quality provision of tourism services.

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INTRODUCTION

The development of tourism services and their supporting activities creates a new phenomenon. The tourism sector produces economic growth, and democratization of tourist experiences (Monaco, 2018). In Indonesia, nowadays many new tourist locations are found, successfully driving the tourism economy, and increasing social activities promoting tourism. The mainstream and social media provide tourists' news and the excitement of its visitors (Nugroho et al., 2018).

This condition is different from the foregoing era. In the past, travel was restricted to the upper classes. Today with the development of low-cost travel and collaborations for ease of service, the possibility of tourism is extending to all society groups. In this context, the younger generations are exploiting the products offered by new digital technology and communication, using them to promote, build and

translate certain meanings. The emergence of the information society is a crucial development affecting the demand for tourist services, orienting it to the direction of mobility and individualism. This is a phenomenon that is very important for the social aspects of tourism, which will become more important in the future (Monaco, 2018).

The young generation can show a positive contribution to developing ecotourism activities. They have the opportunity and potential to explore recognizing environmental and cultural services at an ecotourism destination (UNWTO, 2017). They show their intensities in exploration, experience, patterns of consumption, and mobility. Their understanding of tourism objects is an incentive for efforts to promote ecotourism and education regarding environmental and cultural conservation (Lee & Jan, 2018b; Su & Wall, 2018). They are able to take "a locus of responsibility" to send messages of environmental conservation comprehensively Further, students are expected to be able to develop a destination image positively and make a real contribution to tourism development (Peake et al., 2009).

The role of the younger generation in tourism activities is related to improving education levels. Higher education can play a crucial role in sustainable development. As environmental sustainability is an increasingly important issue for the world, the role of higher educational institutions in relation to environmental sustainability is more prevalent (Peake et al., 2009). Higher education system provides environmental education through its curricular design, research and collaborative efforts with other parties, and uses their infrastructure and expertise in a positive way to achieve sustainable development. Higher education institutions can help spread the level of society and put pressure on stakeholders. Higher education can play a crucial role in sustainable development (Jadhav et al., 2014).

The young and well-educated constitutes an unknown but substantial proportion of future ecotourism consumers. Thus, their perceptions can provide valuable inputs into the understanding of future ecotourism demand. The importance of education was exemplified in the intention to learn about and appreciate natural and cultural assets, raising environmental awareness for tourists and residents, environmentally-friendly behavior and education programs to promote ecotourism (Günay & Akinci, 2017; Huang et al., 2014; Su & Wall, 2018; Tauro et al., 2021).

Intensifying tourists' perceived behavioral control can increase their ecotourism behavioral intention and ecotourism behavior (Fang et al., 2018; Lee & Jan, 2018b). Tourist's satisfaction and perception have a positive and significant impact on the intention of purchasing the local product. There is also a significant relationship between tourist's satisfaction and perceived quality toward the tourist's perception. Moreover, a significant relationship exists between the tourist's intentions and the tourist's purchase behavior (Nugroho, Hanafie, Rahayu, et al., 2021). Tourists who obtain unique and impressive experiences about a destination will be willing to revisit it, make positive word-of-mouth, and suggest it to other people (Zhang & Walsh, 2021). Policymakers use the research to assess tourists' perceptions in promoting the nation's culture to other parts of the world (Mohd Shariff & Zainol Abidin, 2020; Rahman et al., 2018).

Travel also reveals the opportunity for pedagogical discourse and learning methods. Learning at the field can provide a significant uptake to learners, through interaction and teamwork in travel. This can be useful for building togetherness, as well as learning and interpreting matters regarding culture, flora and fauna, and security and protection needs during travel (UNWTO, 2017). The power of learning and study support groups should not be underestimated. Using mind maps in this context, students can easily see the connections and pathways to the answers. Incremental learning and engaging with students help to break down the tasks and assignments. In summary, this approach to learning gives students structure through a learning journey approach (Yeoman & McMahon-Beatte, 2018).

The younger generation actively travels to various regions, discovering local socio-cultural and environmental values and experiences. Their perception of tourism objects, tourism services and developing problems can be explored. Their experiences provide important things for developing a deeper understanding of their relationship to the local environment (Cheng et al., 2017; Marin-Pantelescu et al., 2022). Positive perceptions of students can support ecotourism development efforts (Rasoolimanesh et al., 2015). Students are always motivated by self-transcending values and seek travel experiences as an opportunity to learn and understand other people's culture in order to create a better world

for themselves and others. Student interaction in groups during tourist trips is open to a sustainable tourism offer and represents an opportunity for the tourism industry to grow its own future (Cavagnaro et al., 2018).

Prior studies described a broad perspective around the economy of ecotourism, the role of the younger generation in promoting tourism, the meaning of conservation education, and perceptions and behavior in viewing tourism objects. This is expected to build a comprehensive framework for the development of ecotourism and its contribution to sustainable development. The problem is that a lot of dispersed empirical evidence has not been identified and constructed along with the development of ecotourism in Indonesia. Indonesia's young generation is also actively identifying, exploring and promoting new ecotourism destinations. As a result, a number of important questions remain largely unanswered, including how they perceive tourism objects? What is their behavior and response to seeing problems at tourist destinations? The research aims to explore students' perceptions of the object of tourism, group behavior in travel and problems in tourist destinations of Coban Tengah, Malang Regency, Indonesia. This research also tries to answer how different levels of university education affect the perceptions and responses of students.

RESEARCH METHOD

The research was conducted at the Coban Tengah tourist site, which is in the authority area of the Pujon district, Malang regency, East Java province, Indonesia. Coban Tengah is a natural tourist destination for waterfalls, approximately 20 km distance from the Malang city,

The research used a survey approach, by conducting observations and interviews through questionnaires. The respondents were students who took part in the field study in the Coban Tengah. In a day-long field study, students took a trekking trip to see natural and cultural conditions. They interacted with each other in groups to understand tourism and environmental conservation. Each group amounted to 4 or 5 people, in line with Mohd Shariff & Zainol Abidin (2020).

The field study was attended by two student groups based on the level of education. First, there were 20 students from the University of Brawijaya's environmental science master's program. The field study was conducted in May 2017. They were studying in the second semester, from the four-semester program of their study. They had insight on ecology and the environment. Secondly, there were 41 undergraduate students from the Faculty of Agriculture, Widyagama University, Malang. The field study was conducted in April 2018. They were studying in the second or fourth semester, from eight semesters of the undergraduate program. They had a relatively limited understanding of ecological and environmental knowledge.

After the field study, students were interviewed to answer the questionnaire. This study wants to explore students' perceptions of the condition of tourism objects, including variables (i) introduction of tourism objects, (ii) student interaction in group, and (iii) problems of tourism objects in social, economic and environmental aspects in the destination site. Student perceptions were expressed through answers to ordinal (Likert), nominal, or answer descriptions.

Some questions provided five answer choices including strongly agree, agree, normal, disagree, and strongly disagree. Respondents chose one answer as desired. Other perceptual responses asked students to compose answers in the form of ranking 1, 2, 3 and 4 of the four available answers where number 4 means the most important, and number 1 is not important. There were also questions where students composed a ranking of up to 10 points.

Nonparametric statistical analysis methods were used to process data. SPSS 14 software was used to measure respondents' responses in the form of means and variance through the chi-square (æ) test. The Kruskal-Wallis test was used to measure the character of ranking data. The results of statistical analysis were used to describe students' perceptions.

RESULT AND DISCUSSION

Tourist Destination of Coban Tengah

The potential of natural resource assets in Malang Regency area is very abundant. This is a source for various natural tourism activities, which spread throughout the mountainous region. In general, the Malang Regency is on the upstream area for small rivers, which then flow collectively as one into Brantas River. The upstream small rivers flowing to adjust the condition of their physiography, forming many unique, exotic and beautiful waterfalls. One of the waterfalls is

Coban Tengah, which is located in Pandesari Village, Pujon District, Malang Regency. The geography of the waterfall of Coban Tengah is located at coordinates -7.891653, 112.475420, in the area of Coban Rondo tourism that has long been famously known.

Tourist destination of Coban Tengah and Coban Rondo are under the management authority of Perhutani. Perhutani is a state-owned enterprise tasked with managing forest resources based on social, economic and environmental vision through the principles of good corporate governance. Tourism services are one of the economic ventures in order to utilize environmental services to attract visitors at the same time within the framework of conservation and environmental education.

The natural waterfall of Coban Tengah is very beautiful and popular among tourists who enjoy the challenges of nature. Coban Tengah has not been promoted as widely as Coban Rondo, so there are less tourists visiting Coban Tengah. Tourists have to go through rough terrain, passing the dirt road that is slippery and dusty. Toward the waterfall site, they walk 500 m along a small river with hilly physiography. In general, trekking conditions are still natural, requiring tourists' readiness to anticipate safety during trips. Research or literature studies on the potential of Coban Tengah have not been conducted.

Respondent Characteristics

The number of student respondents involved in the study was 61 people, consisting of 41 Undergraduate (S1) and 20 Master's (S2) students respectively. The proportion of female students of S1 and S2 students was 46 and 60 percent respectively. The results of the chi-square (æ) test on gender variable showed no significant difference (p=0.32). While on the age variable, 6 S1 students were over 22 years old, while all S2 students were over 22 years old. The age difference between S1 and S2 students was very significant (p <0.05). The differences between the levels of education provided an important perspective in this study.

Figure 1. Coban Tengah Waterfall Map (googlemap)

Table 1. Characteristics of the Respondent

Variable	Unit	Undergraduate Student, S1, n=41	Master's Student, S2, n=20	Significant Level[a]
Gender	% female	46	60	0.320
Age	years	21.01	27.48	0.000
Less than <18 years	people	1	0	
18-22 years	people	34	0	
Over 22 years	people	6	20	

[a] Chi-square of two sample test

Table 2. Students' Perception of Tourist Objects and Group Behavior in the Coban Tengah

No	Items and Variables	Mean (Undergraduate Student, S1, n=41)[a]	Mean (Master's Student, S2, n=20)[a]	Significance level[b]
	Tourist attraction			
1	I've heard about the beauty of this tourism site	3.73	3.30	0.059
2	The tourism destination is very beautiful	4.39	3.75	0.001
3	Tourism sites contain the educational element	3.10	2.45	0.027
4	Trekking paths are relatively hard and risky.	4.22	0.60	0.005
5	Even though exhausted, I gained experience of natural beauty	4.61	4.35	0.075
6	I am very eager to come back to the location	2.02	3.90	0.000
7	I recommend friends or relatives to come to the location	2.05	3.55	0.000
	Group behavior			
8	Travel is more comfortable in groups than go alone	4.85	4.75	0.327
9	Grouping ensures traveling more comfortable and safe	4.66	4.55	0.440
10	Grouping is useful for discussing environmental conservation	4.29	3.70	0.006
11	Leaders significantly play role in guiding travel.	3.93	3.80	0.754

[a] Mean category: 1.00 – 1.80 very low, 1.81 – 2.60 low, 2.61 – 3.40 moderate, 3.41 – 4.20 high, 4.21 – 5.00 very high
[b] Chi-square (æ) of two sample test

In comparison with S1 students, in general, S2 students indicated a more mature age with broader experience. The S2 students presented such characteristics as many of them already working and having adequate knowledge concerning the environment, environmental management, and ecotourism. The background of their education was dominated by science in fisheries, agriculture, biology, and forestry. Also, many S2 students were already married, had visited Coban Tengah before, and often traveled to other natural tourist sites.

According to Goh (2011), activities during a field study provide benefits and students' perception of enhancement of understanding of course materials. The purpose of field study for early semester students is in enhancing their education pathway. Meanwhile, the 2-year students view field study as a form of experience to enhance their future career pathway. Therefore, certain field study methods are needed in order to provide optimal experience and outcomes.

Perception of a Tourist Destination

Table 2 shows students' perceptions of Coban Tengah tourism objects. Of the eleven variables studied, six variables showed significant perceptual differences (p-value <0.05) by S1 compared to S2 students that were found in the variable of 2, 3, 4, 8, 10 and 11. Other variables did not show significant differences in perception by the student

In general, students presented high to very high scores on the variable of beauty (1 and 2) with scores above 3.40. The score shows a significantly higher number by S1 students than S2. Also, S1 students also perceived higher educational element than S2 students, each with a score of 3.10 and 2.45 respectively. These findings indicate that S1 students provide a more beautiful perception and higher educational elements than S2 students.

Table 3 presents a significant Kruskal-Wallis test results which explain that the answers in the questionnaire given by students can be expressed in ranking order. Table 3 also shows that there were no significant differences between S1 and S2 students in providing responses regarding the choice of tourism activities and services.

Waterfalls and streams were the most interesting tourism objects, followed by the lower rank of trekking paths and flora/fauna objects. Students made use of their time to enjoy waterfalls, discuss environmental conservation, and do other activities such as taking pictures or group activities. The impressive tourist service was a resting gazebo and ticketing. These services gave the impression of being able to cheer them up from fatigue and provided relaxation after taking a hard trekking path. Ticket service was considered noteworthy. The entrance ticket was very affordable because students received a special discount by Coban Rondo management.

The results of the above study reveal that the experience factors shown by S2 students provided a more positive perception than that of S1 students. Experience reflects familiarity with tourism objects and this can build a positive image of Coban Tengah tourism. The destination image is defined as the composite sum of beliefs, ideas, and impressions that a person or group has about a destination. This is a

complex and subjective concept consisting of cognitive (perceptions of individual attributes, such as hotel quality, friendliness, weather) and affective components (holistic impressions, such as the atmosphere of the destination) (Peake et al., 2009).

Experience also shapes the potential of a tourist's perception and influences the attitude towards the destination image. This explains the differences between attitude and behavior of newcomers and repeaters towards destination image (Hahm & Severt, 2018), as shown by S1 and S2 students. Positive behavior of S2 students was indicated by the desire to revisit to tourist sites or recommend friends or relatives to come to Coban Tengah.

What happens with perceptions by S1 students is the halo effect phenomenon. The halo effect is the result of a general assessment or generalization of something specific or smaller attributes (Nisbett & Wilson, 1977). S1 students subjectively evaluated on the basis of their perception of tourism objects, as if what happened was true. This response was observed in the variables of beauty, the educational element, or trekking conditions. Indeed, the evaluation of S1 students tend to be biased compared to S2 students. This is a common phenomenon in the world of tourism, often perceived by visitors, or a response to new innovations in tourism activities (Fang et al., 2016).

Group Behavior in Traveling

Group behavior in traveling is an effort or response of someone to the phenomenon found in tourist sites. The response was based on a person's motivation, intentions, knowledge, experience, hopes or character.

In terms of group behavior perceptions, students showed positive perceptions regarding group benefits, with scores in the high to very high categories. In general, scores of S1 students did not differ significantly compared to S2 students (Table 2). The group benefits for learning were significantly higher in S1 compared to S2 students. Other benefits of group behavior included safety keeping and friends to discuss and to take pictures (Table 3).

Table 3. Students' Perception during Field Study Activities in the Coban Tengah

Items and answer choice	Mean/Rank (Undergraduate Student, S1, n=41)	Mean/Rank (Master Student, S2, n=20)	Significant level [a]
Interesting tourist attraction	**æ=29.93[b]; p=0.000**	**æ=12.16; p=0.007**	
a. A challenging trekking path	2.73(2)[c]	2.80(2)	0.924
b. Flora and fauna	2.37(3)	2.00(4)	0.048
c. Beautiful waterfalls and cool stream	3.15(1)	3.10(1)	0.974
d. Artificial tourist rides	1.83(4)	2.20(3)	0.208
Students are interested in activities	**æ=34.86; p=0.000**	**æ=7.86; p=0. 049**	
a. Enjoying waterfalls	3.37(1)	3.05(1)	0.204
b. Taking photos	1.98(4)	2.45(2)	0.097
c. Developing interaction in groups	2.32(3)	2.10(4)	0.402
d. Discussing nature conservation	2.39(2)	2.35(3)	0.893
An impressive type of tourismm service	**æ=17.60; p=0.001**	**æ=14.01; p=0.003**	
a. Ticket service or homestay	2.46(2)	2.85(2)	0.210
b. Food and drink	2.24(3)	2.30(3)	0.866
c. Gazebo and rest area	3.12(1)	3.05(1)	0.798
d. Bathroom / toilet / clean water	2.22(4)	1.85(4)	0.218
Benefits of group	**æ=39.45; p=0.000**	**æ=5.79; p=0.122**	
a. Protect or keep safety	3.44(1)	2.95(-)	0.065
b. There is a friend to talk to	2.41(2)	2.15(-)	0.212
c. Discuss about nature conservation	2.39(3)	2.60(-)	0.368
d. Take pictures together	2.00(4)	2.35(-)	0.198
Negative impacts of group	**æ=10.34; p=0.016**	**æ=3.67; p=0.300**	
a. Not free to do activities	2.41(3)	2.80(-)	0.205
b. It feels uncomfortable	2.10(4)	2.65(-)	0.103
c. Not obtaining knowledge of nature conservation	2.71(2)	2.20(-)	0.087
d. Adjust behavior to friends	2.83(1)	2.35(-)	0.101

[a] Chi-square (æ) of two sample test
[b] Chi-square (æ) of four sample test (Kruskal-Wallis test)
[c] a number in the parenthesis is the rank of variable

Group behavior in traveling was perceived less important for S2 students compared to S1 students. This is indicated by lower scores on S2 students than S1 students (Table 2), and non-significant answer choices for S2 students (Table 3). This is because S2 students have broader knowledge and field psychomotor skills that are better in the understanding of nature tourism. This creates independence in behaving understanding or responding to events around tourist sites. On the contrary, S1 students demonstrate the halo effect phenomenon as they perceive tourism objects.

The approach to learning through field study in particular in group formation provides real learning benefits. This effort and approach greatly help students actively participate in the learning and teaching process. Thus, this can be a solution to the obstacles and difficulties faced by students or teachers, which may cause learning objectives not to be achieved.

Field study can help students to search, define and negotiate their own understanding of the problem. Thus, the teacher holds the role of a facilitator rather than the traditional teaching role. In summary, students are given appropriate preparation and frameworks so that they can solve the problems, build the mind maps, develop illustration, or compile problem-solving planning scenarios.

According to Yeoman & McMahon-Beatte (2018), the power of learning groups is not a small thing. In groups, students interact with each other to develop potential and explore mind maps. As a result, students can easily see connections and paths of things that are identified to lead to alternative answers. With incremental learning and active participation of students, they will be trained to break down complicated tasks and assignments. This learning approach gives students a structural framework through a learning journey approach. Managing tourism travel in groups can facilitate services and the process of transferring knowledge to conservation education (Mohd Shariff & Zainol Abidin, 2020). It further enables to transform the perceptions of tourists or students to better appreciate local biological and cultural diversity (Tauro et al., 2021). In small groups, ecotourism activities can work in a quality manner, can create more intensive services and interpretation of tourists, and generate economic value in the local area (Nugroho et al., 2016).

Furthermore, the concept of group management in travel is a motivation for quality service improvement and innovation development in tourism products. A group of young people does not necessarily have the same interests. To satisfy those millennial tourists, tourism organizations must consider the different values they uphold and the different meanings they give to travel. Young people are very motivated by values that transcend themselves and view travel experiences as opportunities to learn and understand others. Their community culture is to create a better world for themselves and others (Cavagnaro et al., 2018).

Whereas, a tourist group of the older generation require more specific services. This requires tourism managers to produce an introduction to new products, services, and attractions that have not been developed. The implication is the need to create and develop new products to meet the needs of elderly tourists (Portales, 2015).

Problems in the Tourist Site

Coban Tengah tourist location is in the upstream area of the Konto watershed in the Panderman mountains and is located in a protected area. This location is under the management of Perhutani, which is a state-owned enterprise in charge of managing forest products, environmental services, and environmental conservation. These management efforts are always faced with the threat of environmental conservation, including the consequences of tourism services and their supporting sectors.

This study identified 10 variable problems around the location of Coban Tengah, which were then grouped into social, economic and environmental aspects. Table 4 presents non-significant difference (p value> 0.05) between S1 and S2 students in perceiving problems among 10 variables and 3 variable groups. This result shows that they had a relatively similar perception of the problems around tourist sites.

Table 4. Students' Perception of Problems Found in the Coban Tengah

	Variables/Group of variable	Undergraduate Student, S1 (n=41)	Master Student, S2 (n=20)	Significant level[a]
	Variables	ɔe=28.12[b]. p=0.001	ɔe=19.78[b]; p=0.019	
1	Crowded visitor	5.17(8)[d]	5.45(5)	0.774
2	Amenity/facility not sufficient	5.44(7)	6.15(2)	0.330
3	Local people compete for tourists	4.24(9)	3.70(10)	0.471
4	Traffic congestion	4.20(10)	5.20(8)	0.227
5	Hunting for endangered species/illegal logging	5.80(4)	5.35(6)	0.351
6	Crime in the tourism area	6.12(3)	5.30(7)	0.276
7	Litter accumulation	6.51(1)	7.45(1)	0.064
8	Natural springs degradation	5.49(6)	5.85(3)	0.648
9	Floods, erosion and landslides	6.37(2)	5.65(4)	0.262
10	Biodiversity is disturbed	5.63(5)	4.80(9)	0.373
	Group of variables	ɔe=9.68[c]. p=0.008	ɔe=3.32[c]. p=0.190	
a	Economic aspect (1,2,3)	4.95(3)	5.10(-)	0.450
b	Social aspect (4,5,6)	5.37(2)	5.28(-)	0.932
c	Environmental aspect (7,8,9,10)	6.00(1)	5.94(-)	0.764

[a] Chi-square (ɔe) of two sample test
[b] Chi-square (ɔe) of ten sample test (Kruskal-Wallis test)
[c] Chi-square (ɔe) Nof three sample test (Kruskal-Wallis test)
[d] a number in the parenthesis is the rank of variable

S1 and S2 students saw the similar circumstances that litter accumulation was the most crucial problem (first rank). The next ranking of problem variable shows the difference between the levels of student education. Undergraduate students determined the five problem potentials concerning landslides, crime, hunting of endangered species, biodiversity, and natural spring water sources. The S2 students stated such problems as facilities/amenity, natural springs, landslide, tourist crowds and hunting for endangered animals.

In term of the variable group, S1 students saw environmental aspects as the most important problem, followed by social and economic aspects, each with scores of 6.00, 5.37 and 4.95, respectively (Table 4). In contrast, S2 students stated a not significant perceptions (ɔe=3.32; p=0.190) among groups. Thus, S2 students saw no significant difference in looking at these three groups of problems. They might consider that three aspects of the problem were interrelated, inseparable from one another.

Table 4 describes that problems in environmental aspects were more exposed than social and economic aspects. These results confirm the findings of previous studies (Muresan et al., 2016; Parmawati et al., 2012; Peake et al., 2009; Stefănica & Butnaru, 2015). Issues related to environmental conservation are easily raised to become a leading topic. Muresan et al. (2016) identified the main problem in environmental aspects such as litter accumulation, traffic congestion, overcrowded problems for residents, recreational facilities, water pollution, natural environment, landscape damage, and too much water use by tourists. These environmental problems should be managed through compensation efforts obtained from socio-economic benefits throughout the tourism area.

Research Implication

The findings in term of students' perception in Coban Tengah tourist destinations have important implications for the benefits of learning outside the classroom. The phenomenon of halo influences perceived by undergraduate students also provides a fundamental matter regarding the perception of tourist destinations.

Field study should require comprehensive management through targeted programs, planned before, during and after field trips. The program is implemented to manage students' expectations with clear objectives before the field study and ensure that these objectives are met during the field study with appropriate activities to allow reflection during the post field study (Goh, 2011). In summary, the field study diversifies learning strategies and methods to be associated with achieving environmental conservation education goals.

Education on tour travel will have benefits and experiences more than just tourist travel as usual. These experiences include identifying tourism products and services, understanding skilled human resources needs, and preparing for the learning process. This results in collaboration, social capital,

and positive relationships among the people involved to develop ecotourism (Nugroho, Hanafie, Negara, et al., 2021). Such a positive experience perceived by tourists can increase the intention of ecotourism behavior and their ecotourism behavior (Fang et al., 2016; Fang et al., 2018; Lee & Jan, 2018a). Because of this, the educational element on tour travel has great potential to offer meaningful learning experiences for visitor and practitioners (Günay & Akinci, 2017; Pitman et al., 2010)

Group arrangement in travel management has a broad perspective. Collaboration in groups, interacting and participating among members produce learning benefits. Each member receives new knowledge and experience from tourism activities, including new values received by tourism service providers. This will build a sense of empathy and care, including to protect travel safety and increase awareness to look forward to the sustainability of tourism management. Ding & Wu (2022) revealed that high safety perceptions lead to a more positive and affective evaluation and promotion of destination attributes with higher satisfaction and stronger willingness to revisit and recommend. Furthermore, the perception of tourism safety has a significant effect on cognitive image, affective image, and conative image of the destination.

Management of visitors in groups is the basis for developing tourism service innovation. This effort is to meet tourist satisfaction for young, old, or those with special needs. New products and services are developed, such pieces of information are available for all necessities, tourist facilities are equipped, hospitality is created to produce quality service. This empathy and hospitality become the source of tourism service sustainability, including generating economic added value for all parties (Cheng et al., 2017; Portales, 2015). Furthermore, grouping leads to more experiences to enjoy interesting life in a tourist location (Mohd Shariff & Zainol Abidin, 2020). As a result, visitors interact for a longer period of time and on a deeper level with the host community. Thus, they share experiences and local living conditions with an open attitude and friendliness of local life (Marin-Pantelescu et al., 2022).

Environmental problems in managing tourist destinations have always been a big issue. It is necessary to find an answer by identifying other benefits from social and economic aspects and compensating them for solving environmental problems.

Muresan et al. (2016) identified the benefits of tourism development in rural areas. Social benefits in tourism activity mainly are getting to know other cultures and interactions with visitors, respecting local culture, and improving infrastructure. In addition, the tourism destination contributes the economic benefits such as economic growth, fiscal strengthening, and increasing quality of life for villagers.

The social and economic benefits are implemented through a mechanism of local cooperation and agreement, compensated and utilized to solve environmental problems. The finishing point of the priority issues of Coban Tengah tourist area is to improve management and facilities for litter, landslide prevention efforts, river basin conservation, and environmental education.

CONCLUSION AND SUGGESTION

S1 and S2 students show positive perceptions related to the beauty of Coban Tengah attractions. Waterfalls and streams are the most interesting tourist attractions, followed by trekking path and flora/fauna. S1 students demonstrate the halo effect phenomenon, which indicates bias perception than S2 students, mainly on the variable of the beauty, the educational element or conditions of the Coban Tengah waterfall trekking. Students' field study needs to be carefully planned so that implementation meets the objectives of learning education and creates a positive perception for tourism development.

S1 and S2 students show positive perceptions of group behavior on tour travel. The benefits of being grouped by tourists include cooperation in keeping safety, and to develop discussions about environmental conservation. In contrast to undergraduate students, S2 students are less interested in forming tour groups. This is because they show independence, maturity, knowledge, and experience in travel. The interaction in group travel produces collaboration and empathy to develop more quality tourism service innovations.

Problems found in the Coban Tengah tourist area come from environmental aspects, followed by social and economic aspects. Crucial problems mainly come from litter accumulation, potential landslides, natural spring degradation and criminals in tourist attractions. The social and economic benefits of tourism activities

are managed through local cooperation and agreement mechanisms, to be compensated to answer environmental problems.

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