



Evaluation of policy in turtle protection in the Nagari Ampiang Parak, West Sumatra Province, Indonesia

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Abstract

This research aims to describe the results of an evaluation of the Nagari Ampiang Parak government policy on protecting turtles. This research was conducted at the Turtle Conservation Partners location in Nagari Ampiang Parak, Sutera District, Pesisir Selatan Regency. This research was processed using qualitative analysis techniques, descriptive methods, and data collection through observation, interviews, and documentation studies. The research results show that the evaluation of the Nagari Ampiang Parak government in turtle protection can be concluded as a whole, and its implementation has not been optimal. One of the six indicators has been achieved well: policy alignment. Meanwhile, the effectiveness, efficiency, adequacy, accuracy, and responsiveness indicators have not been achieved well because their delivery and socialization have not been optimal. In the future, the government must focus more on optimizing policy implementation.

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Introduction

An investigation into marine biodiversity has determined that turtles encounter the most significant risk of defaunation (McCauley et al., 2015). Within conservation biology, sea turtles are regarded as pivotal emblematic species, inhabiting tropical and subtropical regions and utilizing diverse habitats throughout their life span. They play an essential role in marine ecosystems,

especially coral ecosystems. Still, they are threatened by the increasing effects of land-use change, pollution, and global warming (Kelly et al., 2017), with decreased populations worldwide (Mahbub et al., 2020; Razaghian et al., 2019). The IUCN red list categorizes turtles as follows: endangered (Mancini & Phillott, n.d.; Mortimer & Donnelly, 2008; Wibbels & Bevan, 2019), susceptible (Abreu-Grobois & Plotkin, 2008; Nel & Casale, 2015; Wallace et al., 2013) and lack of data (Mahbub et al., 2020).

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Sea turtles face a series of threats in their terrestrial and marine habitats (Jackson et al., n.d.; Lovemore et al., 2020; Pauly et al., 2005; Wallace et al., 2010). Consequently, they are listed as vulnerable, endangered, or critically endangered by the International Union for Conservation of Nature (International Union for Conservation of Nature [IUCN], 2019; Lovemore et al., 2020).

Turtles are migratory species that require global handling steps and commitment from many countries, one of which is the leading country. Judging from the international trade convention, starting from CITES wild flora and fauna, including turtles, in the appendix I list, this can mean that global trade with these species is no longer allowed. The culling has impacted many turtle nesting sites globally (Hecht et al., 1999; Brost et al., 2015; Butler et al., 2020; Engeman et al., n.d.; Engeman et al., 2005; Hof et al., 2020; Lei & Booth, 2017; Whytlaw et al., 2013) and is likely to continue and in the future expansion of coastal development can increase predation since action can limit the availability of food for their different forcing fauna seek alternative food sources, which may result in predation of the ocean turtle nests (Barton & Roth, 2008; Engeman et al., n.d.; Engeman et al., 2005; Gompper, n.d.; Lamont et al., 1998.; Lovemore et al., 2020.; Halim Iskandar, 2022; Kasenda et al., n.d).

According to (Ario et al., 2016), the turtle is one of the animals whose population level is decreasing yearly. The decline in the turtle population can disrupt the balance of the marine ecosystem. All types of turtles are included in the threatened species category and the IUCN red list, meaning they are threatened with extinction. Turtles play a role in maintaining the stability of seagrass habitats and distributing nutrients in the waters, including supporting the abundance of fish diversity, a source of protein for humans. Furthermore, (Ario et al., 2016) explained that conservation is one of the activities expected to prevent the extinction of turtle habitat, avoid the use of turtles for commercial purposes such as selling eggs, meat, and shells, and can be a means of various knowledge or education to the public at large. Implementing conservation area management aims to maintain environmental ecosystems and marine life, increase fish resources, and preserve the Environment in coastal areas (Ratih, 2013).

In many cases around the world, the role of local communities is considered necessary in the conservation of natural resources (Ancrenaz et al., 2007; Campbell, 2007; Mejías-Balsalobre et al., 2021; Risien & Tilt, 2008). However, Community involvement can sometimes

be one of the most significant conservation challenges, especially when people have different attitudes toward using these resources (Barrios-Garrido et al., 2019; Heinen, 1993; Mejías-Balsalobre et al., 2021). A positive attitude towards biodiversity conservation is essential for the success of community-based conservation projects (Infield, 1988; Mejías-Balsalobre et al., 2021; Vannelli et al., 2019). However, a positive attitude is not guaranteed positive behavior (Friedrich et al., 2014; Kühl et al., 2009; Liu et al., 2011; Mejías-Balsalobre et al., 2021), even when communities directly benefit from the conservation of natural resources (Ineld & Namara, n.d.; Mejías-Balsalobre et al., 2021; Young, 1999).

One of the sub-districts in Pesisir Selatan Regency is Sutera Subdistrict, Nagari (Village) Ampiang Parak, which is still operating in managing and protecting turtles through community participation with members of a Conservation Youth Organization, formed in 2013 under the auspices of the Nagari Ampiang Parak government, Fisheries Service of Pesisir Selatan Regency, the Marine and Fisheries Service of West Sumatra Province, and Coastal and Marine Resources Management Center.

West Sumatra has 7 (seven) Regional Marine Conservation Areas (RMCA) located in 7 (seven) Districts/Cities in the coastal area, namely, Padang, Pariaman City, Padang Pariaman Regency, Agam Regency, Pesisir Selatan Regency, West Pasaman Regency, and the Mentawai Islands Regency. In this RMCA area, animal protection and conservation activities and coastal and marine ecosystem conservation activities are carried out. Turtle breeding has a combined concept of conservation and tourism. This turtle breeding area accepts tourist visits and releases hatchlings for visitors. There are 4 (four) turtle breeding locations in West Sumatra, namely, Padang City RMCA, Pariaman City RMCA, Padang Pariaman Regency RMCA, and Pesisir Selatan Regency RMCA. In Pesisir Selatan Regency, the location is on Karabak Ketek Island.

The role of the community in the management and protection of turtles in coastal areas is united in a Pokmaswas organization, with the Environmental Youth Group (EYG) formed in 2013 under the auspices of the Wali Nagari Ampiang Parak, the Pesisir Selatan Fisheries Service, the West Sumatra Provincial Marine and Fisheries Service, and the Coastal and Marine Resources Management Center of Padang City. EYG is a government partner in supervising and maintaining marine and fisheries resources supervision, as stipulated in Law No. 31 of 2004 concerning fisheries, article 67, where the article states: "the community can be involved in helping to supervise fisheries." Then, the Policy of

the Head of Nagari Ampiang Parak No. 4 of 2019 emphasizes that the objectives of turtle protection in Nagari of Ampiang Parak are: first, Protecting turtles in the nesting beach area of Nagari of Ampiang Parak and second, maintaining the turtle population on the nesting beach of Nagari of Ampiang Parak to achieve balance, harmony, and sustainability and third, preventing, overcoming, and restoring the turtle population from illegal exploitation. Fourth, there was growing public concern and awareness about protecting turtles in Nagari of Ampiang Parak.

Some of the problems found in implementing this turtle protection policy are as follows: the evaluation of the village government in implementing monitoring and conservation activities is still weak. The EYG Group needs support from various parties. The problems faced by the group during the implementation of activities are the lack of socialization of the Village Government and the EYG Group to the community regarding the regulations of the Head of Ampiang Parak Village on the importance of turtle protection. Then, the facilities and infrastructure are minimal, and the human resources are still low. It was recorded in 2016 that the amount of aid received was IDR 95,278,000, then in 2017, the amount of aid was recorded at IDR 447,000,000, and in 2018, the amount of aid was recorded at IDR 162,900,000. The funding is outside of building lighting, then in terms of maintenance, the need for turtle feed/turtle food, operational costs such as patrol costs are often neglected, lack of transportation equipment to transport turtles to conservation sites or turtle ambulances, lack of human resources (HR), community participation in environmental rescue activities on Ampiang Parak beach is still lacking, Lack of supporting facilities and infrastructure available.

Based on information from the EYG Group, the turtle population in 2016-2019 was first recorded in 2016. The number of turtle eggs hatched in that year was 3,479; in 2017, 2,783 hatched and 120 eggs were lost; then, in 2019, the number of turtle eggs hatched was 3,408. The impact of turtle extinction is that if turtles become extinct, coastal and marine ecosystems will face damage. Since the ocean is essential to supplying food sources, damage is inevitable in both ecosystems and will impact humans. If the turtle population decreases, the frequency of turtles laying eggs on the beach will be reduced, and the nutrition received will be diminished. If turtles become extinct, vegetation around the beach will lose its first food source. This causes disturbed vegetation growth and root systems that are not strong enough to maintain sand on the beach, allowing the beach to be further

eroded. Large-scale jellyfish explosions occur, including stinging jellyfish, and this condition will cause losses to the fisheries sector, tourism, and other marine activities throughout the ocean.

Based on the description of the problem that has been explained in the background above, the gaps found based on the initial information in this research can be identified as follows: First, there is still weak implementation of policies from the Nagari Ampiang Parak government in protecting turtles (Guardian Regulation of Nagari Ampiang Parak No. 4 of 2019 concerning Protection of Turtles and Their Habitats in Nagari Ampiang Parak). Second, there are still people who hunt and take turtle eggs for consumption or sale and still do not understand the contents of the policies and prohibitions based on the Nagari Ampiang Parak regulation concerning the protection of turtles and their habitats. Third, there is still a lack of human resources (HR) to manage conservation areas in Nagari Ampiang Parak. Fourth, implementing the Nagari Ampiang Parak government policy in protecting turtles is still weak.

Therefore, based on these various problems, the researcher wanted to write this article with an Evaluation of the Nagari Ampiang Parak Government in Implementing Turtle Protection. The novelty of this research is that there has not been much research on turtle conservation based on local wisdom as part of sustainable development.

Literature Review

Policy Evaluation Concept

Dunn (2017) proposed an array of criteria for policy recommendations that align with the criteria for policy evaluation. The criteria for policy recommendations encompass the following components: First, effectiveness pertains to the extent to which an alternative accomplishes the anticipated outcomes (effects) or fulfills the objectives intended by the action. The second is efficiency, which relates to the quantum of effort necessitated to generate a specific degree of effectiveness. Third, adequacy concerns the extent to which a certain level of effectiveness meets needs, values, or opportunities that may lead to problems. Fourth, alignment is intimately associated with legal and social rationality and pertains to the equitable distribution of outcomes and efforts among various societal groups. Fifth, responsiveness focuses on the degree to which a policy addresses specific societal groups' needs, preferences, or values. Moreover, sixth,

accuracy explained that the criterion of appropriateness is closely linked to substantive rationality, as the question of policy appropriateness does not revolve around individual criteria but involves the interplay of two or more criteria collectively.

Relevant Research

Maulana & Yulianti (2022) explain that the actor mapping indicated that specific stakeholders possessed varying degrees of power, influence, and interest, categorized as strong, intermediate, and weak. The research results prove that the role of stakeholders in managing the turtle conservation area is very influential, so their role is significant for the sustainability of the conservation area and will significantly influence the success of managing the Pangumbahan Beach turtle conservation area (Ismane et al., 2018). Laksmidewi's (2022) research explains that the legal framework includes international agreements and Indonesian regulations to protect turtles as endangered species, emphasizing conservation, ecotourism, and public awareness against consuming turtles. Hochscheid et al. (2022) explain that marine turtle protection policies are developed under the European Marine Strategy Framework Directive, focusing on indicators, assessments, and international collaboration to conserve vulnerable marine turtle species effectively.

Mey Susanti & Madhuri (2020) explain that solopreneurship activities in Mapak Indah Beach aim to access policy windows for turtle conservation through coordination, capacity building, and community education, enhancing protection efforts. Brei et al. (2020) explain that sea turtle protection policies, like beachfront lighting regulations, significantly increase nesting activity, aiding in species preservation and potentially reducing time to extinction, as shown in Florida. Fagundes et al. (2021) explain that the Brazilian Action Plan for Amazon Turtle Conservation aims to protect nesting sites of Podocnemis species, indicating a focused policy for turtle protection in the Amazon region.

Methodology

This type of research is qualitative research that uses descriptive methods. In this research, ten distinct categories of informants were identified by applying the purposive sampling methodology, which entails establishing specific criteria deemed capable of yielding

optimal data. The research will be known based on interviews with several informants who have relevant knowledge regarding evaluating Nagari Ampiang Parak government policies in protecting turtles. This research also carried out observations in the field. In the research, the informants were as follows (See Table 1):

Table 1 Research informants

No.	Informants
1	Chairman of the Nagari Ampiang Parak
2	Secretary of Nagari Ampiang Parak
3	Nagari Community Empowerment Expert
4	Environmental Activist
5	Regional Maritime and Fisheries Service of West Sumatra Province
6	Marine Conservation Center of West Sumatra Province
7	Coastal and Marine Resources Management Center
8	Deliberative Body of Nagari Ampiang Parak
9	Environmental Expert
10	Fisheries Service of South Pesisir Regency

Data collection techniques are the most essential step in research because research aims to obtain data. In this research, the researcher collected data through interviews, observation, and documentation studies (Sugiyono, 2017). To validate the data, triangulation was carried out. The data analysis technique used in this research follows, and there are three components of data analysis: data reduction, data presentation, and conclusion (Moleong, 2014).

Results and Discussion

Pesisir Selatan Regency is located in the West Coast Region of West Sumatra Province with a beach length reaching 267 Km; as many as 47 islands are scattered in the waters of this Regency, and turtles are often found nesting and laying eggs on almost all of these islands and several other parts of the coastal area. EYG started with the anxiety of the locals who saw the beach where they interacted daily. It began to be affected by sea erosion and looked barren because of the lack of plants on the coast. The formation of the EYG started with the planting of sea cypress trees and mangroves carried out by dozens of people on Nagari Ampiang Parak Beach; after the sea cypress trees and mangroves grew and developed around the conservation area, marine biotas such as fish, shrimp, and crabs began to arrive including the increasing number of turtles wanting to lay their eggs along Ampiang Parak Beach.

EYG activities are carried out through self-help or in collaboration with the government and other non-governmental organizations. One form of exercise that turtle conservation partners have carried out is monitoring the nesting turtle beach in Nagari Ampiang Parak; if the public gets turtle eggs, the EYG will relocate the eggs to the hatchery to make monitoring more accessible. Other activities that EYG has carried out include conservation of environmental empowerment through planting coastal vegetation, such as mangroves and sea pine, for reforestation and abrasion protection of endangered species, especially sea turtles. In addition, this group also empowers coastal communities through empowering conservation partner areas in Pesisir Selatan Regency.

Starting in 2014, the handover of conservation activities from the district government to the provinces related to that authority in 2016 so that conservation authority belongs to the government starting that year; there are conservation areas managed by the government and conservation areas which are in the district controlled by the community. Conservation activities organized by the community, especially those in Nagari Ampiang Parak, are called conservation partners. Thus, to see more clearly the evaluation of a program's policy, the authors use indicators according to the findings in the field. From the research results, it can be divided into several parts, namely:

Evaluation of Policy Programs

The provincial government is needed to protect turtles. The Nagari government provides strict sanctions, and it is necessary to get special legal protection from the provincial government, regional governments, the Nagari Government, and non-governmental organizations that are members of the marine and fishery resource supervisory community group. This is because the current turtle population continues to decline. In this case, the extinction of turtles is increasingly being lifted to the surface; the decline in the number of turtles is also believed to impact the Environment.

With the policy that regulates the prohibition of hunting turtles and their eggs following applicable policies and regulations, it is hoped that it will minimize the impact of turtle extinction as a form of turtle protection and conservation. Based on the Policy of the Nagari Ampiang Parak government Number 4 of 2019, it is necessary to re-evaluate the policy and conduct socialization to the Conservation Partner subgroup so that the contents of the policy objectives and implementation

can be achieved. The conservation authority that belongs to the government starts that year; the government manages conservation areas, and the community controls conservation areas. Conservation activities are managed by the community, especially in Nagari Ampiang Parak. The community entirely does the management, and the government only assists the community and guides groups.

Achievement of Policy Program Objectives

Achieving the objective of evaluating the policies of the Nagari Ampiang Parak government in protecting turtles is the goal of ensuring the extent of harmony between the final results of implementing a program. The aim is to see to what extent the legalized policy has been maximally implemented in the protection of turtles, and based on interviews with the Chairman of Nagari Ampiang Parak who explained that the goal is none other than empowering turtles, wanting to develop how turtles can be licensed. Their habitat is protected, especially when implementing policies that have been legalized.

Sufficient Resources

Policy achievement requires sufficient supporting resources, such as human resources, funds, facilities, and infrastructure. Turtle protection has been explicitly provided. The management funds at the Nagari Ampiang Parak Turtle Conservation Partner use the budget for donations from the Central Government, Regional Government, and Nagari Government; the operational costs include turtle care, turtle feed, turtle posts, and buildings at the Turtle Conservation Partner. Meanwhile, the operational costs for the transportation of members are still not entirely fulfilled, and the government pays attention to this, especially in this funding; based on research findings, they explained that primarily, it is to invite and appeal based on socialization depending on the community resources. The stages cannot be completed simultaneously; every program they make and implement cannot be completed simultaneously.

Environmental Conditions

Based on field observations and interviews conducted with the Ampiang Parak turtle conservation group, the conservation carried out is as follows: First, eggs from turtle nesting sites, whose distribution spread along the coast of Nagari Ampiang Parak, are moved to an incubator that gives more protection from predatory animals.

Second, a container tank is used to care for newly hatched hatchlings so they are more ready to be released into the sea. Third, provide the availability of knowledge facilities and several learning media for students and the community to increase their knowledge of life, the importance of maintaining the turtle population, the characteristics of turtles, and the characteristics of the turtle habitat. The benefits of this activity are that it provides knowledge and insight to minimize the impact of turtle extinction. Fourth, the residents of the conservation area are given briefings on how to be directly involved in developing the turtle tourism area in Nagari Ampiang Parak.

According to (Lohmann et al., 2008), hatchlings (turtle chicks) that have just hatched are not immediately released into the sea but are kept in a holding tank or hatchling tank so that the hatchlings are better ready to be cast into the open sea; the hatchlings and turtles which are then released are lightweight. Hatchlings kept in holding tanks before being released to the sea can be checked to isolate disabled and diseased hatchlings so that the success of turtle hatchlings at sea can be optimized. Community activities around the turtle hatchery such as fishing boats that are continuously operating, are still carried out.

The Lack of Facilities and Infrastructure to Support Turtle Protection at Ampiang Parak Turtle Conservation Partners.

Based on the research findings, it is seen that protecting animals or living things requires significant funds and costs, starting from, for example, operational costs for electricity and fuel, including the costs of personnel who carry out all kinds of patrol activities, when compared between group incomes. Daily operational needs are increasing, including charges for turtle feed and mangrove maintenance, which are still minimal. Furthermore, facilities and infrastructure are the most significant obstacles, especially in managing turtles and their protection at turtle conservation partners.

There are still many obstacles, especially regarding financial assistance, facilities, and infrastructure of the central, regional, and Nagari governments. Many of these do not pay attention to the need for conservation management. Based on the interview above and observations in the field, the obstacles in protecting and managing turtle conservation partners can be seen. The government still lacks special attention in providing supporting facilities and infrastructure.

Lack of Socialization and Supervision by the Nagari Government

In addition to the low quality of turtle conservation, another factor contributing to the low conservation and management of turtle protection is the Nagari government's lack of supervision and socialization with the Nagari Ampiang Parak turtle conservation partners. Socialization and control that is still minimal can be seen starting from the supervision that is not routinely carried out and training and socialization to the community, which is still very limited. Based on the research findings in terms of supervision and socialization, there were also many obstacles, one of which was a miscommunication between the Nagari government and the EYG.

The problem is related to budget constraints because indirect outreach to the community requires a place, location, and several delegates from the district government. Based on the interview data, we can see that the steps taken by the Nagari Ampiang Parak government in providing information regarding the policy rules are still not optimal. It can also be seen that the participation of the Nagari community in protecting the turtles is still not optimal, and it cannot be said that the protection of the turtles has not been maximized. This follows the research findings, which explain that there is still a lack of awareness to accept the policy by the Nagari community in protecting turtles; this is because not all Nagari people understand and know how to protect turtles properly and correctly. Then, not all people follow and see the socialization from the Regency or Nagari Government to protect these turtles. The role of the Nagari Ampiang Parak Government in protecting turtles is based on the theory of policy evaluation (Dunn, 2017), which can be seen in the following discussion:

Effectiveness

Effectiveness comes from the word practical, which means achieving success in achieving the goals that have been set (Ramdani et al., 2024; Balode & Blumberga, 2023). Facts found in the field, such as Nagari policies and regulations concerning the policy for protecting coastal ecosystems, especially turtles in Nagari Ampiang Parak, are still ineffective. Several programs from the Nagari government have not fully succeeded in achieving the goals and objectives of the Nagari government in protecting turtles in Nagari Ampiang Parak. The policy states that turtles are marine reptiles protected by the government, and turtle protection is a shared responsibility between the government and the community. However,

in reality, this regulation has not been widely implemented, and many people still do not fully understand the contents of the Nagari Ampiang Parak government policy in protecting turtles because the government has not paid enough attention to intensively socializing the contents of the protection policies that have been made.

Gedeian (1991) defines effectiveness as the more significant the extent to which an organization's goals are met or surpassed, the greater its effectiveness. However, until now, the government of Nagari Ampiang Parak and Turtle Conservation Partners have not or still very rarely provide motivation or encouragement so that turtle conservation is maintained and the policies made can run well.

Efficiency

The efficiency referred to in this study is to evaluate the policies of the Nagari government regarding the use of optimal resources so that goals will be achieved. Thus, it is hoped that the Nagari Ampiang Parak government and Turtle Conservation Partners in Nagari Ampiang Parak can use resources to achieve the goals of existing policies. Based on the research results obtained in the evaluation of the Nagari Ampiang Parak government in protecting turtles based on the regulations of the Wali Nagari Ampiang Parak, socialization has been held for the community and training to provide knowledge in terms of how to protect and manage turtles properly and correctly.

However, in this case, many people still do not understand the Nagari government's program. Then, the training education and socialization held by the Nagari government, which also collaborates with the district government, does not close the possibility for stakeholders, especially the community in Nagari, to know the management and empowerment of existing resources. However, in this case, the government still lacks supervision of turtle protection, and many stakeholders are ignorant even though policy socialization has been implemented. Related stakeholders have not utilized socialization efficiently. Moreover, the principle of efficiency in turtle protection policies has not been achieved optimally.

Adequacy

The concept of adequacy in public policy can be articulated as the extent to which the objectives attained are perceived to be satisfactory in multiple dimensions (Andrews, 2022; Guerrero et al., 2024). Thus, it can be inferred that adequacy remains interconnected with effectiveness by evaluating or forecasting the extent to

which the available alternatives can fulfill needs, values, or opportunities in addressing various forms of impending challenges (Boix-Cots et al., 2024; Jarzabkowski et al., 2024).

Based on the regulatory policy in the protection of turtles in terms of results, the conservation area is still inadequate in terms of financing and post-guard building infrastructure, turtle feed costs, and operational costs, which is one of the essential roles for turtle protection. With the lack of supporting conservation infrastructure in Nagari Ampiang Parak, the fulfillment of the need to protect turtles in the place of the turtle conservation partners is hampered.

Despite the community's awareness regarding the significance of turtle conservation, a considerable portion of the Nagari Ampiang Parak populace is still unfamiliar with the appropriate methodologies for adequate turtle protection. Empirical data collected in the field indicate an imperative need for a thorough re-evaluation and extensive socialization initiatives orchestrated by the Nagari government, directed towards the local community, to facilitate the implementation of the established policies.

Alignment

Alignment in policy can have the same meaning as justice given and obtained by public policy targets (Peay, 2024; Inderberg & Bailey, 2022). Dunn (2017) stated that equity criteria are closely related to legal and social rationality and refer to the distribution of consequences and efforts between different social groups. According to field data on the turtle protection policy in Nagari Ampiang, the Nagari government and community groups have felt the benefits of the turtle protection program.

Responsiveness

The term "responsiveness" within the realm of public policy refers to the reaction of the target demographic to the execution of a particular policy initiative (Butler & Vis, 2022; Liu et al., 2025; Rosset, 2022). As Dunn (2017) articulated, responsiveness pertains to the extent to which a policy can fulfill the requirements, inclinations, or principles of specific community factions. The efficacy of a policy can be assessed through the community's reaction to its execution after an anticipatory analysis of the potential outcomes that may arise from the policy's implementation (Ahmad et al., 2024; Ogu & Nebo., 2025).

Based on the research findings, the EYG for the environment feels that they are still not satisfied with the evaluation policy of Nagari Ampiang Parak regulations

in conducting guidance and outreach to the community. Such will make it easier for the community to get advice and direction from the central, regional, and Nagari governments. From this data, it can be seen that the policy to protect turtles still does not change the community's economy.

Accuracy

Policy accuracy is the value, quality, and quality of the policy goals based on the hypothesis underlying these goals (Botterill, 2024; Linqiti, 2024; Luján, 2023). The maximum accuracy of the Nagari government policies based on the ratified regulations has not been maximized because many of these regulations have not been appropriately implemented.

Appropriateness refers to the policy objectives' value or price and the underlying assumptions' strength (Vesely, 2024). Dunn (2017) states that appropriateness is a criterion used to make recommendations by assessing whether the results of the recommended alternatives are a feasible choice of objectives. The feasibility criteria are related to substantive rationality because this criterion concerns the substance of the objectives, not the means or instruments to realize those objectives.

The policy aims to foster public concern and awareness about participating in turtle protection. This means that the regulation is still far from expectations; not all Nagari communities understand the importance of maintaining marine ecosystems, especially in turtle protection, due to the lack of information training and socialization from the Nagari government to the community. Based on the discussion above, the appropriateness of the turtle protection policy has not been optimally successful.

Among the six indicators utilized in public policy evaluation, it can be articulated that five indicators—precisely, effectiveness, efficiency, accuracy, adequacy, and responsiveness—have not reached their optimal levels of achievement. In contrast, the leveling indicator has demonstrated a measurable positive impact on society, although it remains subject to further enhancement.

Conclusion and Recommendation

Based on the findings and discussion of the research that has been done, it can be concluded that, among other things, the evaluation and implementation of Nagari government policies in protecting turtles have been implemented but have not been maximized. One indicator has been proficiently attained among

the six indicators assessed, specifically policy alignment. Conversely, suboptimal delivery and dissemination have not optimally realized the effectiveness, efficiency, adequacy, accuracy, and responsiveness indicators.

Two factors caused the obstacles encountered in protecting turtles in Nagari Ampiang Parak. Constraints caused by internal factors are (a) lack of implementation of the policy implementation of the Nagari Ampiang Parak Government in turtle protection, (b) lack of socialization and supervision of the Nagari government towards turtle conservation partners; external obstacles are (a) Lack of supporting facilities and infrastructure turtle conservation area. (b) The level of people's education is still low.

Based on the results of observations and research that have been carried out, suggestions that can be given for turtle protection are as follows: First, improve the quality of policies; the Nagari government must pay more attention to the routine training and outreach provided to Nagari officials, turtle conservation partner groups, and the entire Nagari community, a maximum of once a month, as well as policies related to turtles. Second, to increase people's awareness, the Nagari government must conduct more intensive outreach and training on turtle protection. Third, the performance of the Nagari Government program regarding turtle protection must be maximized so that it can be implemented optimally.

This research is theoretically expected to become material for study to enrich the use of policy evaluation concepts, especially in environmental protection and ecology. Meanwhile, practically, this research is expected to become a consideration for stakeholders, both government and society, in improving performance in implementing turtle protection policies and as a basis for enhancing relevant policies. It is hoped that future research will focus on innovative and collaborative policy design between stakeholders in ecological protection by involving all stakeholders.

Conflict of Interest

The authors declare that there is no conflict of interest.

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References

- Abreu-Grobois, A., & Plotkin, P. (2008). *Lepidochelys olivacea*. The IUCN Red List of Threatened Species. <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T11534A3292503.en>
- Ahmad, T., Putera, R. E., & Koeswara, H. (2024). The Effectiveness of Policy Implementation for the Development of Disaster-Resilient Tourism by the Padang City Government. *Journal of Social and Policy Issues*, 4(4), 181–190. <https://doi.org/10.58835/jspi.v4i4.397>
- Ancrenaz, M., Dabek, L., & O'Neil, S. (2007). The Costs of Exclusion: Recognizing a Role for Local Communities in Biodiversity Conservation. *PLoS Biology*, 5(11). <https://doi.org/10.1371/journal.pbio.0050289>.
- Andrews, M. (2022). This is how to think about and achieve public policy success. *Social Science Research Network*. <https://doi.org/10.2139/ssrn.4150875>
- Ario, R., Wibowo, E., Pratikto, I., & Fajar, S. (2016). Preserving turtle habitat from threat of extinction at Turtle Conservation and Education Center (TCEC), Bali. *Jurnal Kelautan Tropis*, 19(1). <https://doi.org/10.14710/jkt.v19i1.602>.
- Balode, L., & Blumberga, D. (2023). Evaluating the Effectiveness of Agricultural and Forestry Policies in Achieving Environmental Goals Through Policy Documents. *Rigas Tehniskas Universitates Zinatniskie Raksti*, 27(1), 195–211. <https://doi.org/10.2478/rtuct-2023-0015>.
- Barrios-Garrido, H., Wildermann, N., Diedrich, A., & Hamann, M. (2019). Conflicts and solutions related to marine turtle conservation initiatives in the Caribbean basin: Identifying new challenges. *Ocean & Coastal Management*, 171. <https://doi.org/10.1016/j.ocecoaman.2019.01.003>.
- Barton, B. T., & Roth, J. D. (2008). Implications of intraguild predation for sea turtle nest protection. *Biological Conservation*, 141(8), 2139–2145. <https://doi.org/10.1016/j.biocon.2008.06.013>.
- Boix-Cots, D., Pardo-Bosch, F., & Pujadas, P. (2024). Introducing the comprehensive value function for sustainability full-spectrum assessment. *Sustainability*. <https://doi.org/10.3390/su16072617>
- Botterill, L. C. (2024). The values dimension of policy success and failure: Considering two Australian rural adjustment policies. *Australian Journal of Public Administration*. <https://doi.org/10.1111/1467-8500.12678>
- Brei, M., Pérez-Barahona, A., & Strobl, E. (2020). Protecting species through legislation: the case of sea turtles. *American journal of agricultural economics*, 102(1), 300–328.
- Brost, B., Witherington, B., Meylan, A., Leone, E., Ehrhart, L., & Bagley, D. (2015). Sea turtle hatching production from Florida (USA) beaches, 2002–2012, with recommendations for analyzing hatching success. *Endangered Species Research*, 27(1), 53–68. <https://doi.org/10.3354/esr00653>.
- Butler, C., & Vis, B. (2022). Heuristics and policy responsiveness: a research agenda. *European Political Science*, 22(2), 202–227. <https://doi.org/10.1057/s41304-022-00394-6>
- Butler, Z. P., Wenger, S. J., Pfaller, J. B., Dodd, M. G., Ondich, B. L., Coleman, S., Gaskin, J. L., Hickey, N., Kitchens-Hayes, K., Vance, R. K., & Williams, K. L. (2020). Predation of loggerhead sea turtle eggs across Georgia's barrier islands. *Global Ecology and Conservation*, 23. <https://doi.org/10.1016/j.gecco.2020.e01139>.
- Campbell, L. M. (2007). Local Conservation Practice and Global Discourse: A Political Ecology of Sea Turtle Conservation. *Annals of the Association of American Geographers*, 97(2). <https://doi.org/10.1111/j.1467-8306.2007.00538.x>.
- Dunn, W. N. (2015). *Public policy analysis: An integrated approach*. Routledge.
- Engeman, R. M., Martin, R. E., Smith, H. T., Woolard, J., Crady, C. K., Shwiff, S. A., Constantin, B., Stahl, M., & Griner, J. (2005). Dramatic reduction in predation on marine turtle nests through improved predator monitoring and management. *ORYX*, 39(3), 318–326. <https://doi.org/10.1017/S0030605305000876>.
- Engeman, R. M., Shwiff, S. A., Constantin, B., Stahl, M., & Smith, H. T. (n.d.). *An economic analysis of predator removal approaches for protecting marine turtle nests at Hobe Sound National Wildlife Refuge*. www.elsevier.com/locate/ecocon.
- Fagundes, C. K., Fath, F., Côrtes, L. G., Uhlrig, V., Andrade, P. C. M., Vogt, R. C., ... & Júnior, P. D. M. (2021). A large scale analysis of threats to the nesting sites of Podocnemis species and the effectiveness of the coverage of these areas by the Brazilian Action Plan for Amazon Turtle Conservation. *Journal for Nature Conservation*, 61, 125997.
- Friedrich, L. A., Jefferson, R., & Glegg, G. (2014). Public perceptions of sharks: Gathering support for shark conservation. *Marine Policy*, 47, 1–7. <https://doi.org/10.1016/j.marpol.2014.02.003>.
- Gedeian, A.G. (1991). *Organization Theory and Design*. University of Colorado at Denver.
- Gompper, M. E. (n.d.). *The Ecology of Northeast Coyotes Current Knowledge and Priorities for Future Research*. www.wcs.org.
- Guerrero, O., Guariso, D., & Castañeda, G. (2024). Perceived adequacy of policy instruments reveals weak targets in the Sustainable Development Goals. *Sustainable Development*. <https://doi.org/10.1002/sd.3044>
- Halim Iskandar, A. (2022). *Village SDGs: Accelerating the achievement of sustainable national development goals*. Yayasan Pustaka Obor Indonesia.
- Hecht, A., Nickerson, P. R., & Obegi, D. (1999). *Endangered species update*, 16: 6 (November/December 1999). <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/39351/als9527.0016.006.pdf?sequence=1>
- Heinen, J. T. (1993). Parak–people relations in Kosi Tappu Wildlife Reserve, Nepal: A socio-economic analysis. *Environmental Conservation*, 20(1). <https://doi.org/10.1017/S037689290003719X>.
- Hochscheid, S., Maffucci, F., Abella, E., Bradai, M. N., Camedda, A., Carreras, C., Claro, F., de Lucia, G. A., Jribi, I., Mancusi, C., Marco, A., Marrone, N., Papetti, L., Revuelta, O., Urso, S., & Tomás, J. (2022). Nesting range expansion of loggerhead turtles in the Mediterranean: Phenology, spatial distribution, and conservation implications. *Global Ecology and Conservation*, 37, e02194. <https://doi.org/10.1016/j.gecco.2022.e02194>
- Hof, C. A. M., Shuster, G., McLachlan, N., McLachlan, B., Giudice, S., Limpus, C., & Eguchi, T. (2020). Protecting nests of the Critically Endangered South Pacific loggerhead turtle *Caretta caretta* from goanna *Varanus* spp. Predation. *ORYX*, 54(3), 323–331. <https://doi.org/10.1017/S0030605318001564>.
- Inderberg, T. H. J., & Bailey, I. (2022). Anchoring policies, alignment tensions: Reconciling New Zealand's climate change act and emissions trading scheme. *Politics and Governance*, 10(1). <https://doi.org/10.17645/pag.v10i1.4788>
- Infield, M. (1988). Attitudes of a rural community towards conservation and a local conservation area in Natal, South Africa. *Biological Conservation*, 45(1). [https://doi.org/10.1016/0006-3207\(88\)90050-X](https://doi.org/10.1016/0006-3207(88)90050-X).
- Infield, M., & Namara, A. (n.d.). *Community attitudes and behavior towards conservation: an assessment of a community conservation program around Lake Mburo National Parak, Uganda*. <https://doi.org/10.1046/j.1365-3008.2001.00151.x>
- International Union for Conservation of Nature [IUCN]. (2019). *The IUCN red list of threatened species*. <https://www.iucnredlist.org/>
- Ismane, M. A., Kusmana, C., Gunawan, A., & Affandi, R. (2017). Formulation of sustainable management policy direction for Turtle conservation area of Pangumbahan beach in Sukabumi Regency. *Development*, 7(3).

- Jackson, J. B. C., Kirby, M. X., Berger, W. H., Bjorndal, K. A., Botsford, L. W., Bourque, B. J., Bradbury, R. H., Cooke, R., Erlanson, J., Estes, J. A., Hughes, T. P., Kidwell, S., Lange, C. B., Lenihan, H. S., Pandolfi, J. M., Peterson, C. H., Steneck, R. S., Tegner, M. J., & Warner, R. R. (n.d.). *Historical Overfishing and the Recent Collapse of Coastal Ecosystems*. www.sciencemag.org
- Jarzabkowski, P., Unger, C. J., & Meissner, K. (2024). Valuing what you risk and risking what you value: Advancing a research agenda for risk studies. *Organization Studies*. https://doi.org/10.1177/01708406241290038
- Kasenda, P., Boneka, F. B., & Wagey, B. T. (2013). Turtle Nesting Location on The East Coast of Minahasa District, North Sulawesi Province. *Jurnal Pesisir Dan Laut Tropis*, 1(2), 58–62. https://doi.org/10.35800/jplt.1.2.2013.2496
- Kelly, I., Leon, J. X., Gilby, B. L., Olds, A. D., & Schlacher, T. A. (2017). Marine turtles are not fussy nesters: a novel test of small-scale nest site selection using structure from motion beach terrain information. *PeerJ*, 5(e2770). https://doi.org/10.7717/peerj.2770
- Kühl, A., Balinova, N., Bykova, E., Arylov, Y. N., Esipov, A., Lushchekina, A. A., & Milner-Gulland, E. J. (2009). The role of saiga poaching in rural communities: Linkages between attitudes, socio-economic circumstances and behaviour. *Biological Conservation*, 142(7). https://doi.org/10.1016/j.biocon.2009.02.009
- Laksmidewi, C. D. (2022). The Legal Framework for the Protection of Turtles as Protected Animals from Culinary Business Production. *Substantive Justice International Journal of Law*, 5(1), 11–26.
- Lamont, M. M., Percival, H. F., Pearlstine, L. G., Colwell, S. V., & Carthy, R. R. (1998). Sea turtle nesting activity along Eglin Air Force Base on Cape San Blas and Santa Rosa Island, Florida from 1994 to 1997.
- Lei, J., & Booth, D. T. (2017). Who are the important predators of sea turtle nests at Wreck Rock Beach? *PeerJ*, 2017(6). https://doi.org/10.7717/peerj.3515
- Linqiuti, P. D. (2024). Operationalizing Lasswell's call for clarification of value goals: an equity-based approach to normative public policy analysis. *Policy Sciences*, 57(1), 193–219. https://doi.org/10.1007/s11077-024-09525-w
- Liu, F., McShea, W. J., Garshelis, D. L., Zhu, X., Wang, D., & Shao, L. (2011). Human-wildlife conflicts influence attitudes but not necessarily behaviors: Factors driving the poaching of bears in China. *Biological Conservation*, 144(1). https://doi.org/10.1016/j.biocon.2010.10.009
- Liu, Y., Zhang, P., & Meng, F. (2025). Beyond specific case responses: Accountability, public service motivation, and bureaucrats' policy responsiveness. *Public Policy and Administration*. https://doi.org/10.1177/09520767251366797
- Lohmann, K. J., Luschi, P., & Hays, G. C. (2008). Goal navigation and island-finding in sea turtles. *Journal of Experimental Marine Biology and Ecology*, 356(1–2), 83–95. https://doi.org/10.1016/j.jembe.2007.12.017
- Lovemore, T. E. J., Montero, N., Ceriani, S. A., & Fuentes, M. M. P. B. (2020). Assessing the effectiveness of different sea turtle nest protection strategies against coyotes. *Journal of Experimental Marine Biology and Ecology*, 533. https://doi.org/10.1016/j.jembe.2020.151470
- Luján, J. L. (2023). Evidence-based policies: Lessons from regulatory science. *Politics and Policy*. https://doi.org/10.1111/polp.12543
- Mahbub, R. B., Ahmed, N., & Yeasmin, F. (2020). Towards reducing the data gap in the conservation efforts for sea turtles in Bangladesh. *Regional Studies in Marine Science*, 35. https://doi.org/10.1016/j.rsma.2020.101151
- Mancini, A., & Phillott, A. (n.d.). *Chelonia mydas* (North Indian Ocean subpopulation). The IUCN Red List of Threatened Species 2019. https://www.iucnredlist.org/
- Maulana, D., & Yulianti, R. (2022). Multi-actor collaboration in improving the economy of the fishing community in Karangantu Coastal Area of Serang, Indonesia. *Journal of Contemporary Governance and Public Policy*, 3(2), 87–100.
- McCauley, D. J., Pinsky, M. L., Palumbi, S. R., Estes, J. A., Joyce, F. H., & Warner, R. R. (2015). Marine defaunation: Animal loss in the global ocean. *Science*, 347(6219). https://doi.org/10.1126/science.1255641
- Mejías-Balsalobre, C., Restrepo, J., Borges, G., García, R., Rojas-Cañizales, D., Barrios-Garrido, H., & Valverde, R. A. (2021). Local community perceptions of sea turtle egg use in Tortuguero, Costa Rica. *Ocean and Coastal Management*, 201. https://doi.org/10.1016/j.ocecoaman.2020.105423
- Mey Susanti, A. S., & Mashuri, J. (2020). Policy windows: Sociopreneurship activity through development of turtle breeding ecotourism in Mapak Indah Beach. *Jurnal Ilmiah Ilmu Administrasi Publik: Jurnal Pemikiran dan Penelitian Administrasi Publik*, 10(2), 343–356.
- Moleong, L. J. (2014). *Qualitative Research Methods Revised Edition*. PT Remaja Rosdakarya.
- Mortimer, J. A., & Donnelly, M. (2008). *Eretmochelys imbricata*. The IUCN Red List of Threatened Species.
- Nel, R., & Casale, P. (2015). *Caretta caretta* (South West Indian Ocean subpopulation). The IUCN Red List of Threatened Species.
- Ogu, O. A., & Nebo, S. (2025). Evaluating the effectiveness of government policies on the development of rural areas: A study of selected states in Southeast Nigeria. *Journal of Policy and Development Studies*, 18(3), 116–139. https://doi.org/10.4314/jpds.v18i3.8
- Pauly, D., Watson, R., & Alder, J. (2005). Global trends in world fisheries: Impacts on marine ecosystems and food security. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 360(1453), (5–12). https://doi.org/10.1098/rstb.2004.1574
- Peay, P. C. (2024). The people's intervention: How #BlackLivesMatter circumvented a culture of congruent criminal justice policies in American States. *Journal of Race, Ethnicity, and Politics*. https://doi.org/10.1017/rep.2023.40
- Ramdani, M. H., Darwis, M., & Saleh, S. (2024). Employee performance effectiveness at the office of the South Sulawesi provincial general election supervisory agency. *Journal of Public Policy and Local Government (JPPLG)*, 123–131. https://doi.org/10.70188/k5ncwk59
- Ratih, D. (2013). Local values of Situ Lengkon conservation forest to develop students' green behavior through history. *Historia: Jurnal Pendidik dan Peneliti Sejarah*, 14(2), 267–284. https://doi.org/10.17509/historia.v14i2.2032
- Razaghian, H., Esfandabad, B. S., Hesni, M. A., Shoushtari, R. V., Toranjzar, H., & Miller, J. (2019). Distribution patterns of epibiotic barnacles on the Hawksbill turtle, *Eretmochelys imbricata*, nesting in Iran. *Regional Studies in Marine Science*, 27. https://doi.org/10.1016/j.rsma.2019.100527
- Risien, J., & Tilt, B. (2008). A Comparative Study of Community-based Sea Turtle management in Palau: Key factors for successful implementation. *Conservation and Society*, 6(3). https://doi.org/10.4103/0972-4923.49215
- Rosset, J. (2022). Perceptions of (unequal) responsiveness and their consequences for electoral participation. *Journal of European Public Policy*, 30(8), 1565–1587. https://doi.org/10.1080/13501763.2022.2094989
- Sugiyono. (2017). *Quantitative, qualitative, combination research methods*. Alfabeta.
- Vannelli, K., Hampton, M. P., Namgail, T., & Black, S. A. (2019). Community participation in ecotourism and its effect on local perceptions of snow leopard (*Panthera uncia*) conservation. *Human Dimensions of Wildlife*, 24(2). https://doi.org/10.1080/10871209.2019.1563929

- Vesely, A. (2024). Policy calibration and policy acceptability: assumptions, evidence, and practical implications. *Policy Design and Practice*. <https://doi.org/10.1080/25741292.2024.2342098>
- Wallace, B. P., DiMatteo, A. D., Hurley, B. J., Finkbeiner, E. M., Bolten, A. B., Chaloupka, M. Y., Hutchinson, B. J., Abreu-Grobois, F. A., Amorocho, D., Bjordal, K. A., Bourjea, J., Bowen, B. W., Briseño Dueñas, R., Casale, P., Choudhury, B. C., Costa, A., Dutton, P. H., Fallabrino, A., Girard, A., Girondot, M., Godfrey, M. H., Hamann, M., López-Mendilaharsu, M., Marcovaldi, M. A., Mortimer, J. A., Musick, J. A., Nel, R., Pilcher, N. J., Seminoff, J. A., Troëng, S., Witherington, B., & Mast, R. B. (2010). Regional management units for marine turtles: A novel framework for prioritizing conservation and research across multiple scales. *PLOS ONE*, 5(12), e15465. <https://doi.org/10.1371/journal.pone.0015465>
- Wallace, B. P., Tiwari, M., & Girondot, M. (2013). *Dermochelys coriacea*. The IUCN Red List of Threatened Species.
- Whytlaw, P. A., Edwards, W., & Congdon, B. C. (2013). Marine turtle nest depredation by feral pigs (*Sus scrofa*) on the Western Cape York Peninsula, Australia: Implications for management. *Wildlife Research*, 40(5). <https://doi.org/10.1071/WR12198>.
- Wibbels, T., & Bevan, E. (2019). *Lepidochelys kempii*. The IUCN Red List of Threatened Species. <https://www.iucnredlist.org/>.
- Young, E. H. (1999). Balancing conservation with development in small-scale fisheries: is ecotourism an empty promise? *Human Ecology*, 27(4). <https://doi.org/10.1023/A:1018744011286>