



IMPLEMENTATION OF THE POLICY PROHIBITING THE KILLING OF ESTUARY CROCODILES IN RANTAU GEDANG AND TELUK RUMBIA VILLAGES, SINGKIL DISTRICT, ACEH SINGKIL REGENCY

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Abstract

This study examines the implementation of the policy prohibiting the killing of estuarine crocodiles in Rantau Gedang Village and Teluk Rumbia Village, Singkil District, Aceh Singkil Regency, as well as the factors hindering its implementation. The study was motivated by increasing human–crocodile conflicts that have resulted in fatalities and created a dilemma between wildlife conservation and community safety. This research employs a descriptive qualitative approach, with data collected through interviews, observations, and documentation. The analysis is based on Merilee S. Grindle's policy implementation theory, which focuses on policy content and implementation context. The findings indicate that the prohibition policy has not been implemented optimally. Although it has a strong legal foundation and clear objectives, it has not fully addressed the community's need for safety. The main barriers include low community compliance, limited resources, inadequate continuous socialization, weak inter-agency coordination, and the socio-economic dependence of local communities on river activities. A more comprehensive strategy is therefore required through improved public awareness, strengthened monitoring, and human–wildlife conflict mitigation so that estuarine crocodile conservation can be balanced with community safety and welfare.

Keywords: conservation, estuarine crocodile, Grindle, human–wildlife conflict, policy implementation

INTRODUCTION

Policy implementation is the stage that determines whether government decisions are truly translated into actions, outputs, and outcomes that align with objectives. Policy decisions are typically outlined in laws, executive regulations, or institutional decisions that identify issues, establish objectives, and regulate implementation mechanisms. Therefore, the success of a policy cannot be measured solely by the existence of written regulations. Success is also determined by the acceptance of the target group, the capacity of implementers, inter-agency coordination, the availability of resources, and the policy's ability to adapt to social conditions on the ground. A top-down approach emphasizes consistency of implementation from policymakers to target groups, while a bottom-up approach considers the experiences, interests, and responses of communities directly impacted by the policy.

This issue is evident in the implementation of the policy prohibiting the killing of estuarine crocodiles in Rantau Gedang Village and Teluk Rumbia Village, Singkil District, Aceh Singkil Regency. This policy has a clear conservation objective, namely to protect the existence of protected animals and maintain ecosystem balance. The government plays a role as a rule-maker, supervisor, and implementer of conflict resolution, while the community is the target group expected to comply with the prohibition on hunting, capturing, injuring, killing, keeping, caring for, transporting, or trading protected animals. However, the policy implementation takes place in an area where the community's livelihoods are highly dependent on rivers, swamps, and coastal areas. Rivers serve as transportation routes, fishing grounds, daily activity spaces, and sources of livelihood, making interaction between humans and estuarine crocodiles difficult to avoid. For the communities of Rantau Gedang and Teluk Rumbia, the presence of estuarine crocodiles is not only understood as part of the ecosystem, but also as a threat to life and livelihoods.

Attacks that result in casualties give rise to fear, trauma, and the perception that policies protect animals more than humans. In emergencies, some communities may be driven to take action themselves because they feel government protection is not yet available quickly and effectively. This situation highlights the gap between the normative objectives of the policy and the realities of the target group. A legally binding prohibition does not automatically result in compliance if communities still face direct risks without adequate mitigation mechanisms. The legal basis for the protection of estuarine crocodiles in this study includes Law Number 32 of 2024 which amended Law Number 5 of 1990 concerning the conservation of natural biological resources and their ecosystems, Regulation of the Minister of Environment and Forestry Number P.106/MENLHK/SETJEN/KUM.1/12/2018, Regulation of the Minister of Environment and Forestry Number P.20/MENLHK/SETJEN/KUM.1.6/2018 concerning protected plant and animal species, and Aceh Qanun Number 11 of 2019 concerning wildlife management. The legal framework prohibits actions that harm protected animals and positions the BKSDA as an institution that has technical authority in monitoring, evacuation, relocation, socialization, and handling human-wildlife conflicts.

Initial observations indicate that a number of efforts have been made, including setting traps, checking locations, searching for victims, evacuating animals, installing warning signs, and conducting outreach to the community. However, these actions are more frequently undertaken after an incident has occurred. The Teluk Rumbia Village Head stated that patrols, setting traps, and outreach only took place a few days after the crocodile attack, and then discontinued routinely. The village government has also sent letters to the Natural Resources Conservation Agency (BKSDA) and related agencies, but has not received any follow-up deemed adequate. This situation indicates that implementation tends to be reactive, rather than preventive and sustainable. Data from the Aceh Natural Resources Conservation Agency (BKSDA) demonstrates a government response to estuarine crocodile management in the Singkil area. In 2023, two crocodiles were handled through coordination with the Village Leadership Coordination Forum (Muspika), animal condition checks, evacuations, burials of carcasses found dead, trapping, and public awareness campaigns. In 2025, one crocodile was handled through ground checks, evacuations, trapping, and providing information regarding Law Number 32 of 2024. Although these measures demonstrate the existence of management procedures, human-crocodile conflicts continue to recur. Conflict data recorded two victims in Rantau Gedang in 2022 and two victims in Rantau Gedang and Teluk Rumbia in 2025.

Based on these conditions, this study focuses on two questions. First, how is the implementation of the policy prohibiting the killing of estuarine crocodiles in Rantau Gedang and Teluk Rumbia Villages, Singkil District, Aceh Singkil Regency? Second, what factors hinder the implementation of this policy? The aim of this study is to explain the implementation of the policy through the dimensions of policy content and implementation environment, while also identifying obstacles that affect the balance between wildlife conservation and public safety. Theoretically, this study is expected to enrich the study of conservation policy implementation at the local level. Practically, the research results can serve as evaluation material for the Natural Resources Conservation Agency (BKSDA), local governments, sub-district governments, village governments, and communities in formulating more responsive and sustainable conflict management.

LITERATURE REVIEW

Public policy is a series of government choices and actions aimed at solving problems and achieving specific goals. Thomas R. Dye, in Abdoellah and Rusfiana (2016), defines public policy as anything the government chooses to do or not do. Anderson, in Igrisa (2022), emphasizes that public policy is a purposeful action undertaken by one or more actors to resolve a problem. Thus, public policy is not merely a decision but also encompasses procedures, implementers, target groups, division of authority, resources, and the consequences that arise after the policy is implemented.

The policy process includes agenda setting, formulation, adoption or legitimation, implementation, and evaluation (Marwiyah, 2022). The implementation stage is crucial because it is at this stage that policy objectives are translated into programs, actions, and services. Jumroh (2021) views implementation as an ongoing effort that takes place in a constantly changing environment. Subianto (2020) emphasizes that implementation encompasses events and activities after a policy is enacted, including administrative processes, conflicts of interest, benefit distribution, and impacts on society. A well-formulated policy can still fail if resources, communication, implementing structures, and target group responses are inadequate.

This study uses Merilee S. Grindle's implementation model as the main framework. Grindle views implementation as a political and administrative process influenced by the content of policy and the context of implementation (Subianto, 2020). The content of the policy includes the interests of those affected, the types of benefits, the degree of expected change, the location of decision-making, the program implementers, and the

resources committed. The context of implementation includes the power, interests, and strategies of actors; the characteristics of institutions and regimes; and compliance and responsiveness. This model is relevant because the policy of prohibiting the killing of estuarine crocodiles depends not only on the clarity of the rules but also on the relationship between the BKSDA (National Conservation Agency), local governments, communities, victims, and the socio-ecological environment in which the policy is implemented. The Van Meter and Van Horn models are used as a supporting framework to clarify operational factors. The models emphasize policy dimensions and objectives, resources, implementing agency characteristics, implementer attitudes, interorganizational communication, and social, economic, and political conditions (Subianto, 2020). In the context of this research, clarity of conservation objectives requires field resources, rapid response, interagency coordination, community understanding, and adjustments to residents' economic dependence on rivers. The two models complement each other: Grindle explains the content and political-administrative dynamics, while Van Meter and Van Horn strengthen the analysis of communication, resources, and the implementation environment.

Previous studies have shown that the implementation of wildlife protection policies often faces similar challenges. Rolani (2021) highlighted the crucial role of the Aceh Natural Resources Conservation Agency (BKSDA) in preventing wildlife trafficking, but its effectiveness is influenced by oversight and compliance. Kurniansyah (2021) highlighted the exploitation of protected wildlife and the need for more effective legal protection. Widyastuti (2023) found that illegal wildlife trafficking persists due to weak law enforcement and low public legal awareness. Cahya (2018) demonstrated that the South Sumatra BKSDA's handling of illegal wildlife trafficking has been suboptimal due to limited compliance, network disclosure, and policy impact. Junaidi (2023) emphasized the prohibition on killing wildlife based on the Indonesian Ulema Council (MUI) Fatwa and the Aceh Qanun, as well as the importance of sanctions, coordination, and biodiversity protection. Previous research has generally focused on illegal trade, exploitation, law enforcement, and the role of conservation institutions. This study differs by examining the prohibition on killing estuarine crocodiles in situations of direct human-wildlife conflict. The focus of the research is not only on legal compliance but also on the gaps between conservation benefits, safety risks, economic dependency, division of authority, and government response. These gaps are crucial because conservation policies can lose social legitimacy if target groups perceive risks disproportionate to the benefits received.

METHOD

The research was conducted in Rantau Gedang Village and Teluk Rumbia Village, Singkil District, Aceh Singkil Regency. The locations were selected based on the recurrent human-estuarine crocodile conflict and the occurrence of casualties within a short period. Both villages are located in coastal areas dominated by rivers, swamps, and mangrove ecosystems. Communities use rivers for transportation, livelihoods, and daily activities. These conditions make the research locations relevant for understanding the implementation of conservation policies in areas with high human-animal interaction. The research approach was descriptive qualitative. This approach was used to obtain a comprehensive picture of policy implementation, actors' perspectives, community experiences, victims' responses, and emerging obstacles. The researcher served as the primary instrument for collecting and interpreting data based on the social context. Data were presented in narrative form, interview excerpts, tables, and documentation to maintain the meaning of informants' experiences.

Informants were selected through purposive and accidental sampling. Purposive sampling was used to identify those with authority, knowledge, and direct experience with the policy, while accidental sampling was used to obtain information relevant to the research from the community and victims. Informants included elements from the Aceh Natural Resources Conservation Agency (BKSDA), the Aceh Singkil BKSDA Resort, sub-district governments, village governments, Teuhapeut, academics, the community, victims' families, and victims of estuarine crocodile attacks. Primary data were obtained through interviews and direct observation in Rantau Gedang, Teluk Rumbia, the Aceh Natural Resources Conservation Agency (BKSDA), and the Aceh Singkil BKSDA Resort. Secondary data came from BKSDA documents, laws and regulations, Aceh Qanun (Indonesian Qanun), media reports, public policy books, previous research, photographs, interview recordings, and other supporting documents. Data collection techniques included passive participant observation, in-depth interviews, and documentation. Observations were used to assess regional conditions and community activities, interviews to explore informants' perspectives and experiences, and documentation to strengthen the validity of the information.

Data analysis used the Miles and Huberman model in Abdussamad (2021), which includes data reduction, data presentation, conclusion drawing, and verification. Reduction was carried out by selecting information relevant to the policy content, implementation context, actor responses, and inhibiting factors. Data were then presented in analytical themes based on the Grindle model, supported by Van Meter and Van Horn components. Conclusions were

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verified by comparing interviews, observations, documents, and BKSDA data to ensure interpretations were not solely based on a single source.

Table 1. Research informants

No.	Informant/Position	Technique
1	Munawar, SH, Head of the Administration Sub-Division of the Aceh BKSDA	Purposive
2	Zeki Pantramansyah, Resort Manager of the Aceh Singkil BKSDA	Purposive
3	Khairudin, SE, Head of Singkil District	Purposive
4	Fakhrul Razi, Head of Teluk Rumbia Village	Purposive
5	Andi Budiman, Teuhapeut, Singkil District	Purposive
6	Dr. Ferizaldi, SE, M.Sc., Academician	Purposive
7	Hendrianto, a resident of Teluk Rumbia Village	Accidental
8	Mainah, Family of the victim of an estuarine crocodile attack	Accidental
9	Kaetek, Victim of an Estuarine Crocodile Attack	Accidental

Source: Researcher's processing, 2025.

RESULTS AND DISCUSSION

Description of Location and Implementing Institutions

Aceh Singkil Regency was established based on Law of the Republic of Indonesia Number 14 of 1999 concerning the establishment of the Aceh Singkil Regency. This region consists of eleven sub-districts and is characterized by coastal areas, rivers, swamps, and extensive conservation areas. Rantau Gedang and Teluk Rumbia villages are located in Singkil District and directly border the waters. The majority of residents work as fishermen, farmers, and informal sector workers who depend on natural resources. The community's interaction with the river has been passed down through generations, but this intensity also increases the potential for encounters with estuarine crocodiles.

The Aceh Natural Resources Conservation Agency (BKSDA) is a technical implementation unit under the Directorate General of Natural Resources and Ecosystem Conservation, responsible for safeguarding natural resources and ecosystems in Aceh Province. Field-level implementation is supported by the Aceh Singkil BKSDA Resort, which conducts patrols, habitat and wildlife monitoring, conflict resolution, evacuations, trapping, and community outreach. In human-crocodile conflicts, village and sub-district governments are the first to receive complaints, while technical action against animals remains within the BKSDA's jurisdiction. This division of authority provides legal certainty, but can also slow response if coordination and resources are inadequate.

Table 2. Data on policy implementation regarding the ban on killing estuarine crocodiles, 2023–2025

Year	Location/Quantity	Government action
2023	Singkil; 2 tails	Coordination with the Muspika (Regional Leadership Coordination Forum); initial examination of the crocodile's condition; evacuation to the Resort Office and treatment plan at the Aceh BKSDA; burial of carcasses if the animal is found dead; installation of traps with authorities and the community; and appeals to residents.
2025	Singkil; 1 tail	Ground checks and evacuations based on community reports; installation of trap cages at agreed-upon locations; and providing village heads and communities with an understanding of Law Number 32 of 2024.

Source: Aceh Natural Resources Conservation Center, April 9, 2026.

Table 3. Cases of estuarine crocodile conflict in Rantau Gedang and Teluk Rumbia

Year	Location/Type of conflict	Number of cases	Government follow-up
2022	Rantau Gedang; attack humans	2 persons	Officers checked the location and set up traps for evacuation.
2025	Rantau Gedang and Teluk Rumbia; attack humans	2 persons	Installing trapping cages at agreed-upon locations; providing an understanding of Law Number 32 of 2024; and listening to community complaints regarding the evacuation of crocodiles to other locations.

Source: Aceh Natural Resources Conservation Center, April 9, 2026.

Policy Content: Interests, Benefits, Changes, Implementers, and Resources

The interests affected dimension indicates that the policy impacts two primary interests, both of which are equally important. The first interest is the conservation of estuarine crocodiles as a protected species and part of a balanced ecosystem. The second interest is the safety and sustainability of the livelihoods of communities living around the river. The Natural Resources Conservation Agency (BKSDA) views the prohibition on killing as not merely a normative prohibition, but rather a guideline for managing conflicts through reporting, field inspections, evacuations, and technical measures. The community, on the other hand, assesses the policy based on the government's ability to provide a sense of security when crocodiles appear in their activity areas. These differing points of emphasis have become a source of tension in implementation.

Munawar, SH, explained that the state has an obligation to protect protected animals, but the policy also regulates how to handle conflicts. If crocodiles are deemed dangerous, the public is directed to report them to officials so that procedures can be followed. This statement demonstrates that the policy actually seeks to balance conservation and safety. The reporting mechanism prevents spontaneous actions that could endanger the public and violate the law. However, this procedural benefit is only effective if reports are responded to promptly and the public receives certainty of action.

"The policy regarding the prohibition on killing protected animals is not merely a prohibition, but also regulates how conflicts are handled. If an estuarine crocodile is seen that is considered dangerous, the appropriate action is to report it to the nearest officer, who will then handle it according to established procedures."

Munawar, SH, BKSDA Aceh, interview January 5, 2026.

Zeki Pantramansyah's statement reinforces the existence of standards in the field. Each report is assessed based on the level of danger, site conditions, and the animal's situation. The assessment results form the basis for determining whether to remove, set traps, evacuate, or relocate. Lethal action is not the first option because it conflicts with conservation goals and should only be considered in situations of real threat when other alternatives are unavailable. From Grindle's perspective, the clarity of the procedure demonstrates that the policy provides operational guidance. From Van Meter and Van Horn's perspective, the policy's standards and objectives are relatively clear, but its effectiveness depends on interorganizational communication, officer capacity, and speed of response.

The type of benefits aspect highlights the difference between long-term benefits and immediate needs. Policy benefits, such as wildlife conservation, food chain balance, and ecosystem sustainability, are not always immediately apparent to the public. Dr. Ferizaldi emphasized that estuarine crocodiles serve an ecological role in maintaining species balance, and therefore, protection regulations must be complied with. However, communities engaged in daily river activities are more likely to experience the costs and risks of the policy, including fear, activity restrictions, threats to livelihoods, and uncertainty about safety. When conservation benefits are abstract and long-term, while safety threats are immediate, public support for the policy becomes fragile.

The extent of change envisioned aspect indicates that the policy requires significant behavioral changes. Communities are asked not to act independently, to report crocodile sightings, to maintain distance from the habitat, to change the time or location of activities, and to accept treatment by officers. These changes are difficult to fully implement because the river is a central part of economic and social life. The Teluk Rumbia Village Head stated that the community is aware of the crocodile's protected status but remains concerned because their activities are so close to the habitat. The village government can only report to the authorities and does not have the authority to take

technical action. Thus, normative compliance has been established, but behavioral changes are not supported by alternative livelihoods, warning systems, and adequate protection. The site of decision-making aspect shows that technical decisions rest with the BKSDA, while village and sub-district governments deal directly with the community. This division aligns with formal authority, but creates a distance between the decision-making location and the conflict area. Andi Budiman, the Teuhapeut (Regional Head of the Forestry and Natural Resources Agency), stated that local governments must rely on the BKSDA for trapping, evacuation, and conservation measures. When emergencies occur, this dependence reduces local government flexibility. The Singkil Sub-district Head also assessed that the policy is national in nature and has not been fully followed by adequate population management, monitoring, and warning systems at the local level.

The program implementers' aspect shows that the BKSDA and the Aceh Singkil BKSDA Resort have carried out technical functions through observation, ground checks, trapping, evacuation, warning signs, and outreach. The local government, sub-districts, villages, officials, and the community were also involved in the search for victims and the setting of traps. The presence of various actors indicates real implementation, not just regulations on paper. However, field actions are still more dominant after the conflict has occurred. Trapping, which only lasted a few days, and discontinuous outreach reduce the policy's ability to prevent recurrence. The resource commitment aspect is a major weakness. The vast working area, remote locations, limited personnel, and limited traps, monitoring equipment, communication facilities, and budget mean that the response is not always swift. The public expects officers to be present immediately when crocodiles are sighted, while implementers must coordinate, assess the location, prepare equipment, and mobilize personnel. This gap between public expectations and implementer capacity creates the perception that the government only acts after a victim has been identified. Consequently, clear policy content is not supported by resource commitments commensurate with the risks and the vast habitat area.

Implementation Context: Actors, Institutions, Compliance, and Responsiveness

In terms of power, interests, and strategies of the actors involved, the Natural Resources Conservation Agency (BKSDA) holds technical authority and a conservation mandate, while sub-district and village governments have a socio-political responsibility to protect residents. Communities have a vested interest in the safety and access to rivers as a source of livelihood. These differing interests give rise to differing strategies. The BKSDA prioritizes reporting, assessment, trapping, evacuation, and education. Local governments encourage more rapid action, population management, relocation, or captive breeding. Some communities want crocodile numbers reduced to restore safety to river activities. The success of the policy depends on the ability to integrate these strategies within a legal, safe, and acceptable framework.

The Singkil sub-district head expressed a critical view that the ban on killing is a national policy, while the burden of conflict falls on local communities. He argued that monitoring crocodile development, monitoring numbers, warning systems, and providing protection to residents have not been balanced. This view suggests that policy legitimacy declines when local actors perceive conservation goals are not accompanied by equal protection. The sub-district head's proposal regarding crocodile capture and relocation demonstrates a search for solutions, but competitive activities require careful review as they could conflict with wildlife protection standards. These differences underscore the need for a coordinating forum capable of translating local interests without disregarding conservation laws.

Institutional and regime characteristics influence implementation patterns. The BKSDA operates through procedures, division of authority, and organizational hierarchy. The BKSDA Aceh Singkil Resort conducts an initial inspection, then determines equipment and action needs based on the situation. This structure provides technical control, but can result in a slow response if authority, personnel, and resources are concentrated. The village government has sent letters to the BKSDA and related agencies, but considers follow-up unclear. Traps were set after the incident and were short-lived. This situation indicates weak continuity between administrative reporting and field action.

The institutional context is also evident in the handling of victims. Mainah stated that the local government was present, providing assistance, and conducting searches until the victims were found. Kaetek, a victim of the attack, also received assistance in the form of basic necessities and other forms of aid. The government's presence demonstrates concern and coordination during a crisis. However, post-incident assistance does not replace the need for prevention. A reactive response can reinforce the perception that institutions operate after victims emerge, rather than through ongoing monitoring, patrols, and mitigation. In terms of compliance and responsiveness, the community is generally aware that estuarine crocodiles are protected species. Village heads and Teuhapeut routinely remind residents not to act alone and to report immediately. Compliance tends to be high when there is no immediate threat.

However, after repeated crocodile attacks or sightings, fear can override compliance. The community assesses government responsiveness based on the speed of officer arrival, the effectiveness of traps, the continuity of patrols, and the presence of concrete protection measures. When reports are not promptly followed up, support for policies declines and the likelihood of unilateral action increases. Hendrianto expressed community concern over increasingly frequent crocodile sightings and the unsafe situation for children bathing in the river. He urged the government not to wait for the next victim before taking action. Kaetek also expressed hope that the number of crocodiles around the village could be reduced, as the majority of residents work as fishermen. This statement does not necessarily indicate a rejection of conservation. He emphasized the need for policies to be more responsive to the experiences of target groups. In Grindle's framework, compliance is inseparable from the implementer's ability to address community needs. In Van Meter and Van Horn's framework, target group support is influenced by communication, resources, and the alignment of policy objectives with socio-economic conditions.

"I really hope there will be further policies from the responsible institutions to prevent further victims. Don't wait for the next victim. We're now quite worried about activities in the river because crocodiles are frequently seen."

Hendrianto, Teluk Rumbia community, interview April 11, 2025.

Environmental conditions also shape the implementation context. Dr. Ferizaldi explained that conflict needs to be viewed in terms of habitat changes, land clearing, and changes in watershed function. If natural habitats are disturbed, crocodiles will increasingly intersect with fishing activities. This demonstrates that a no-kill policy is insufficient if it is not accompanied by habitat protection and spatial management. Conflict is not only caused by human behavior, but also by ecological changes that push animals closer to areas of human activity.

Overall, the implementation context demonstrates cooperation, but it has not yet become a consistent collaborative system. The Natural Resources Conservation Agency (BKSDA), local governments, sub-districts, villages, officials, and communities can work together when incidents occur. However, this collaboration is not fully supported by routine agendas, division of prevention roles, population data, rapid communication channels, and regular evaluations. As a result, policies are more focused on emergency response than long-term mitigation.

Factors Inhibiting Policy Implementation

The first obstacle is the community's socio-economic dependence on the river. Residents continue to fish, use boats, collect natural resources, and conduct daily activities in crocodile habitats. Social distancing advice is difficult to fully comply with due to the lack of readily accessible space or livelihood options. This obstacle is not solely a result of low discipline, but a consequence of the local economic structure. Policies demand behavioral changes, while the community's material conditions do not support such changes.

The second obstacle is low conservation awareness among some communities. The Natural Resources Conservation Agency (BKSDA) has stated that crocodiles are protected species, but this knowledge is not always translated into behavior. When communities perceive crocodiles as an immediate threat, safety and economic interests outweigh long-term ecological benefits. This finding aligns with Rolani (2021) and Widyastuti (2023), who demonstrated that wildlife protection faces challenges in terms of awareness, compliance, and legal culture. Socialization conducted only after a conflict is insufficient to build a stable understanding.

The third barrier is fear, trauma, and low acceptance among the target group. Crocodile attacks result in injuries, loss of family members, reduced activity, and psychological insecurity. Kaetek explained that after becoming a victim, he feared returning to river activities because crocodile sightings were still frequent. Mainah stated that as long as there is no guarantee of safety, public objections to policies are natural. The victims' experiences demonstrate that compliance is inseparable from a sense of security. Policies that expect the public to accept the presence of crocodiles without adequate protection will face resistance.

The fourth obstacle is limited implementing resources. The number of officers is disproportionate to the area's size and the number of vulnerable points. The distance from the officer center to the village makes response time difficult. Traps, monitoring equipment, transportation, communications, and budget are also limited. Hendrianto assessed that response times are often delayed due to remote locations and personnel not always being on standby. This situation supports the findings of Cahya (2018) and Rolani (2021) that the BKSDA's capabilities are significantly influenced by operational capacity and the breadth of its monitoring coverage.

The fifth obstacle is weak coordination and continuity of action. The village government has sent letters, but the inter-agency response is unclear. Traps are set and outreach is initiated after a victim has been identified, then stopped shortly. Reporting mechanisms are in place, but they are not always followed by feedback, follow-up schedules, and

evaluations. As a result, the local government and community are unaware of the progress of the response. One-way communication reduces trust and widens the gap between policy standards and practice.

The sixth obstacle is the limited authority of local governments. Villages and sub-districts are the first to receive reports, but they cannot capture, relocate, or handle animals without the BKSDA. This division of authority is crucial to prevent unlawful actions, but it also makes responses dependent on the presence of technical agencies. When officials are late, local governments are in the difficult position of having to reassure the community without being able to take immediate action. Clear emergency protocols are needed, including initial actions that village governments can take while waiting for the BKSDA.

The seventh obstacle is habitat destruction and alteration. Land clearing and changes in watershed function can reduce crocodile habitat and increase encounters with humans. If the ecological roots are not addressed, trapping will only provide a temporary solution. Policies need to integrate habitat management, mapping vulnerable locations, monitoring upstream and downstream activities, and area-based mitigation. This finding aligns with Cahya (2018) and Junaidi (2023), who identified conflicts between human interests and wildlife protection as a critical conservation challenge.

These barriers are interconnected. Dependence on rivers increases risk exposure; risk generates fear; fear reduces policy acceptance; slow responses undermine trust; and weak coordination makes actions reactive. Therefore, policy success cannot be achieved through ban enforcement alone. A combination of education, resources, coordination, safety mitigation, habitat management, and community engagement is required.

Table 4. Synthesis of findings based on Grindle's implementation model

Dimensions	Main findings	Implications
Affected interests	Conservation of estuarine crocodiles is at odds with the safety and livelihoods of communities.	Policies need to balance animal protection and ensuring citizen safety.
Types of benefits	Ecological benefits are long-term; safety risks are immediate.	Policy benefits need to be translated into concrete protection for target groups.
Degree of change	People are asked to change their behavior and not act alone, but remain dependent on rivers.	Behavioral changes must be accompanied by alternatives, education, and warning systems.
Decision location	Technical authority rests with the BKSDA; villages and sub-districts have limited authority.	Initial response protocols and rapid coordination need to be clarified.
Implementers and resources	There are ground checks, traps, evacuation, outreach, and assistance, but personnel and facilities are limited.	Increased resources and program sustainability are needed.
Actors and strategies	BKSDA, local governments, and communities have different interests and strategies.	Collaborative forums must bring together conservation, safety, and economic needs.
Characteristics of institutions	Formal structures ensure procedures, but can slow down response and follow-up.	Coordination, feedback, and evaluation between agencies need to be strengthened.
Compliance and response	The public understood the ban, but support declined after the attacks and when the response was slow.	Preventive responsiveness is a prerequisite for policy legitimacy and compliance.

Source: Research results, processed 2026.

Integrative Discussion

Research findings indicate that the policy prohibiting the killing of estuarine crocodiles has been implemented, but not optimally. Implementation is evident in the legal basis, division of authority, public reports, field inspections, trapping, evacuation, outreach, victim search, and assistance. However, the success of a policy is not determined solely by the presence of activities. The policy must be able to prevent conflict, provide a sense of security, preserve wildlife, and gain the support of target groups. The research results still show gaps in these indicators.

Within Grindle's framework, policy content faces challenges in the distribution of benefits and burdens. The state benefits from conservation and ecosystem services, while local communities bear the daily risks. The degree of change requested is substantial, but not accompanied by equitable resources and protection. Decision-making locations far from villages reduce flexibility, while limitations in implementing capacity slow response. The implementation context also demonstrates conflicting interests, weak coordination continuity, and compliance heavily influenced by experiences of conflict.

These findings reinforce research by Rolani (2021) on the importance of the BKSDA's role and obstacles to oversight; Kurniansyah (2021) on the conflict between wildlife protection and human interests; Widyastuti (2023) on legal awareness and culture; Cahya (2018) on limited compliance, routines, performance, and impacts; and Junaidi (2023) on the urgency of the Aceh Qanun and wildlife protection. This research's contribution lies in explaining that conservation conflicts at the local level are not merely a matter of law enforcement. They also involve issues of risk distribution, speed of service delivery, institutional capacity, and policy fairness for communities dependent on wildlife habitats.

More effective policies require shifting response patterns from reactive to preventive. Outreach should be conducted regularly and risk-based, not just after an attack. Data on crocodile occurrences, vulnerable locations, time patterns of crocodile activity, and habitat conditions should be mapped with the community. Warning signs should be accompanied by a rapid communication system and initial action procedures. Patrols, trapping, and evacuations require clear schedules, resources, and performance indicators. Regional and sub-district governments need to have defined operational roles without taking over the conservation authority of the Natural Resources Conservation Agency (BKSDA).

Community involvement is crucial because residents possess local knowledge about rivers, crocodile occurrence times, and vulnerable locations. Participation should not be understood as handing over responsibility to the community, but rather as collaboration in monitoring, reporting, education, and regulating activities. A participatory approach can reduce unilateral actions, increase trust, and make policies more socially appropriate. At the same time, habitat protection and controlling changes in watershed functions need to be incorporated into strategies to ensure that the roots of conflict are not overlooked.

Thus, the balance between conservation and safety cannot be achieved through either party's choice. Protecting estuarine crocodiles remains a legal obligation, while protecting the community is a government responsibility. Both need to be integrated into a conflict mitigation system that integrates law, public services, conservation, environmental management, and community welfare.

POLICY IMPLICATIONS

The main implication of this research is the need to shift the orientation of implementation from post-incident management to ongoing prevention. The Natural Resources Conservation Agency (BKSDA) remains the primary technical agency with authority over protected species, but implementation in the field needs to be more hands-on with the community. A one-time outreach campaign or just after an attack is not sufficient. Information needs to be repeated regularly in easy-to-understand language, explaining the legal status of estuarine crocodiles, how to report them, actions to avoid, and safe practices when operating in rivers. Consistent education can reduce panic and unilateral action while strengthening the understanding that conservation and public safety are not mutually exclusive goals.

The BKSDA also needs to strengthen oversight and response readiness. Field findings indicate that trapping, ground checks, and evacuations have been implemented, but these have not always been long-term or sustained. Therefore, technical actions need to be followed by monitoring after trapping, communication of response results, and explanations to village governments regarding next steps. Information security is crucial because communities often judge the effectiveness of policies by the presence or absence of follow-up. When the response process is unknown, residents may perceive reports as being ignored even if coordination is ongoing.

Regional and sub-district governments need to strengthen their liaison role between the community and the Natural Resources Conservation Agency (BKSDA). Local governments are closer to victims, their families, fishermen, and residents who use the river daily. This close relationship can be used to quickly submit reports, identify vulnerable locations, coordinate assistance, and ensure that information from the BKSDA is received by the community. Local government support is also needed to provide facilities, transportation, communications, and field needs to ensure resource limitations do not consistently hamper response. Strengthening local roles must remain within the limits of their authority to ensure that actions regarding wildlife are carried out in accordance with regulations.

Village governments play a strategic role in developing community-based prevention. Villages can alert residents to locations and times considered vulnerable, install and maintain warning signs, organize reporting, and encourage the public to maintain vigilance when engaging in river activities. Information from fishermen, victims, and residents who frequently encounter crocodiles can be gathered for coordination with the Natural Resources Conservation Agency (BKSDA). Community involvement is crucial because residents are aware of changing river conditions, crocodile occurrence patterns, and the most frequently used activity points. However, this participation should be directed at monitoring and reporting, rather than self-capturing or killing crocodiles.

For communities, compliance with prohibitions remains a crucial part of conservation and safety efforts. Self-inflicted actions can risk injury, trigger new conflicts, and violate legal provisions. Communities should report crocodile sightings to village officials or officials, avoid activities in areas where warnings have been issued, and follow handling instructions. At the same time, community compliance must be built through trust. The government needs to demonstrate that reports are addressed, victims are cared for, and protection extends beyond providing assistance after an incident.

Conflict management also requires attention to habitat. Changes in watershed function, land clearing, and disturbances can increase human encounters with crocodiles. Therefore, estuarine crocodile protection needs to be integrated into broader environmental management. Maintaining habitat, reducing disturbances to the area, and understanding the relationship between upstream conditions and settlements are all part of prevention. This approach prevents policies from falling into the trap of trapping as the sole solution, as conflicts can recur if underlying ecological causes are not addressed.

Ultimately, more effective implementation requires a clear understanding of the roles of all parties. The Natural Resources Conservation Agency (BKSDA) is responsible for technical and conservation measures, regional and sub-district governments strengthen coordination and support, village governments manage communication and local awareness, and communities participate through reporting and compliance. This collaboration needs to take place before, during, and after a conflict. In this way, the policy serves not simply as a prohibition, but as a protection system that protects estuarine crocodiles, reduces the risk of casualties, and maintains the sustainability of the livelihoods of riverine communities.

CONCLUSION

The Aceh Natural Resources Conservation Agency (BKSDA) has implemented a policy prohibiting the killing of estuarine crocodiles in Rantau Gedang Village and Teluk Rumbia, along with the Aceh Singkil BKSDA Resort, local governments, sub-districts, villages, officials, and the community. Implementation is evident through outreach, field inspections, trap installation, evacuations, warning signs, victim searches, and post-incident assistance. The policy has a clear legal basis and conservation objectives, but it does not fully address the community's need for safety. The policy's ecological benefits are long-term, while the risk of conflict is directly felt by communities dependent on the river. Centralized technical authority within the BKSDA, limited local response, and the continued dominance of post-incident actions have resulted in suboptimal implementation.

Inhibiting factors include the community's socio-economic dependence on rivers, low awareness and acceptance among some residents, trauma caused by attacks, limited personnel and facilities, distance from the location, weak coordination and follow-up, limited authority of village and sub-district governments, and habitat disturbance and changes in watershed function. These obstacles demonstrate that the success of the policy is strongly influenced by the social, institutional, economic, and ecological context. Formal prohibitions are insufficient without protection, services, and conflict mitigation benefits for the target group.

The Natural Resources Conservation Agency (BKSDA) needs to improve ongoing outreach, patrols, monitoring, rapid response systems, trap availability, and management evaluation. Regional and sub-district governments need to strengthen coordination, provide budgetary support and facilities, and act as active liaisons between the community and the BKSDA. Village governments need to establish reporting systems, map vulnerable areas, regulate river activities, and conduct community-based education. Communities are expected to comply with prohibitions, refrain from taking action on their own, and report crocodile sightings. This strategy needs to be complemented by habitat management, watershed protection, and community involvement to ensure that estuarine crocodile conservation balances with the safety and well-being of residents.

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