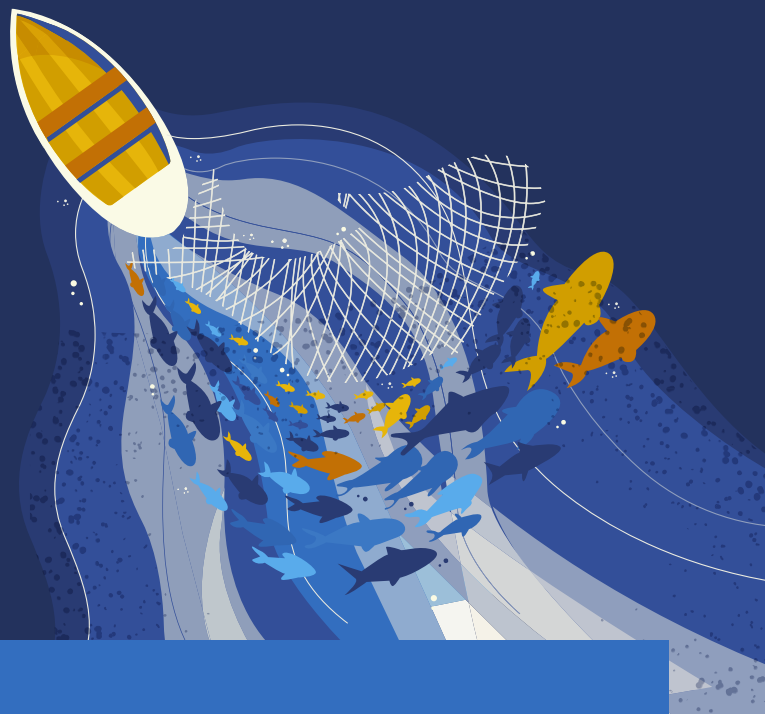


CASE STUDY

Ecuador –

MUISNE



GEOGRAPHICAL CONTEXT

The village of Muisne lies on Muisne Island at the estuary of the Muisne River, within Muisne Canton in the province of Esmeraldas, Ecuador. Muisne is among the country's most impoverished areas, where living conditions are marked by environmental degradation, limited access to safe drinking water (only 38 percent of residents have piped supply), poor housing, and scarce public services, education, and employment. These factors have entrenched chronic marginalization and poverty.^{1 2} In 2015, 94.7 percent of urban residents and 99 percent of rural residents could not meet their basic needs, and 35.7 percent of children under five suffered from chronic malnutrition.³

The estuary hosts diverse communities with distinct identities and ancestries in a territory once dominated by extensive mangrove forests. Artisanal fishing and gathering define local livelihoods, with residents identifying as the “sea and mangrove peoples.” Women, who face especially limited job opportunities, traditionally collect black conch and other shellfish by hand from mangrove roots, earning little due to declining species. Men typically fish nearshore for species such as red porgy, seabass, and mackerel within the first eight nautical miles of the coast, an area reserved by law for artisanal fishing.

1 Revista Gestión (2024) *En Ecuador, el rostro de la pobreza y la extrema pobreza es amazónico*. Revista Gestión. Available at: <https://revistagestion.primicias.ec/analisis-sociedad/en-ecuador-el-rostro-de-la-pobreza-y-la-extrema-pobreza-es-amazonico/>

2 Gongora, L. et al. (2020) *En Muisne nos quedamos: Historia de la resistencia de la población de la isla de Muisne*. Muisne: C-CONDEM. P. 12, 17. Available at: <https://ccondem.org.ec/wp-content/uploads/2021/05/EN-MUINE-NOS-QUEDAMOS-PDF-LIBRO.pdf>

3 Idem. P. 17.

The following are the impacts of climate change as experienced by Muisne communities:

SEA-LEVEL RISE: On the island, sea levels fluctuate every 15 to 30 days due to a tidal event known locally as *aguajes*, when tides can reach 2.9 to 3.4 meters compared to normal levels of 2.2 to 2.7 meters.⁴ Over the past decade, residents have observed more frequent and prolonged *aguajes*, with seawater reaching farther inland than ever before. In the village, saltwater now floods homes and communal spaces, a situation worsened by the destruction of mangrove forests that once protected the coast from flooding and erosion. Large-scale mangrove clearance has severely weakened these natural defenses.

EXTREME WEATHER PATTERNS: Climate change is also disrupting local weather, especially through its influence on El Niño.⁵ Wet seasons bring heavier rainfall and flooding, while dry seasons are increasingly marked by drought.⁶ Fishers and gatherers report that El Niño events have intensified in recent years, with greater variation in rainfall and temperature. As one community leader observed, “Rains are occurring more frequently and with greater intensity, while we are also experiencing prolonged periods of drought.” This instability has led many residents to say simply that “the climate is mad.”

At the national level, Ecuador’s average temperature in 2021 was 0.5°C higher than in 1901–1930.⁷ The country is also facing glacial retreat, more extreme rainfall, and projected sea level rise of 0.45 to 0.71 meters by the end of the century.^{8 9} Climate change will intensify these threats and bring others, including the spread of invasive species, the accelerated loss of native flora and fauna, and greater incidence of tropical diseases such as dengue.¹⁰

4 Idem. P. 14.

5 El Niño, formally known as El Niño-Southern Oscillation (ENSO), is a natural climate cycle shaped by variations in Pacific Ocean winds and sea surface temperatures.

6 UNDP (2018) *National Adaptation Plans in focus: Lessons from Ecuador*. New York: UNDP. P. 1. Available at: https://www.adaptation-undp.org/sites/default/files/resources/nap_in_focus_lessons_from_ecuador_english.pdf

7 IMF (2024) *Climate trends and macroeconomic impacts*. Washington: IMF. Available at: <file:///home/arnau/Downloads/002-article-A005-en.pdf>

8 Idem. P. 32.

9 UNDP (2018) *National Adaptation Plans in focus: Lessons from Ecuador*. New York: UNDP. P. 1. Available at: https://www.adaptation-undp.org/sites/default/files/resources/nap_in_focus_lessons_from_ecuador_english.pdf

10 Idem.

ECOLOGICAL DAMAGE AND DESTRUCTION OF FISHING TERRITORIES

Mangroves are critical breeding and nursery grounds for marine life. Juvenile fish and crustaceans depend on them for food and shelter before migrating to the open sea. Their destruction, largely due to intensive industrial shrimp farming, has disrupted ecological cycles and contributed to a steep decline in marine species.

Shrimp aquaculture dominates Muisne's ocean economy as the most capital-intensive sector. Nationally, Ecuador is the second-largest aquaculture producer in the Americas after Chile, accounting for 30.4 percent of regional output in 2022. This production is overwhelmingly shrimp-based, destined for export. Ecuador has led global shrimp exports since 2022, surpassing India and Viet Nam. In 2024, it was the world's fourth-largest exporter of aquatic products, earning USD 10.1 billion.¹¹ However, this rise has come at immense social and ecological cost. Between 1987 and 2000, an estimated 70 percent of Ecuador's mangroves were cleared for shrimp farming, marking the period of greatest forest destruction.^{12 13}

The industry reached Muisne in the 1980s and has since transformed the estuary. Mangrove coverage shrank from about 20,000 hectares in 1977 to only 5,000 hectares in 2016, a loss of roughly 75%.¹⁴ This widespread destruction has inflicted lasting harm on both ecosystems and local communities, while benefiting only a small group of corporate owners and investors.¹⁵ In addition to deforestation, shrimp farms have released untreated wastewater into the Muisne River and estuary, further polluting the waters and accelerating ecological degradation.¹⁶

The combined effects of mangrove loss, pollution, and climate change have driven a sharp decline in aquatic biodiversity, undermining the rights, livelihoods, and ways of life of fishers and gatherers.

11 FAO (2024) *The State of World Fisheries and Aquaculture 2024 – Blue Transformation in action*. FAO: Rome. Pp. 17, 89. Available at: <https://doi.org/10.4060/cd0683en>

12 C-CONDEM (2007). *Certificando la destrucción*. Quito: Fundación ICO. P. 48. Available at: <https://ccondem.org.ec/wp-content/uploads/2021/05/certificando-la-destruccion-92-1.pdf>

13 Salomé, M. (2015). *Comunidad urbana e industria camaronesa: Resistencias territoriales en Muisne-Esmeraldas*. Ecuador. P. 51. Available at: <https://repositorio.flacsoandes.edu.ec/bitstream/10469/8755/2/TFLACSO-2015MSCR.pdf>

14 Gongora, L. et al. (2020) *En Muisne nos quedamos: Historia de la resistencia de la población de la isla de Muisne*. Muisne: C-CONDEM. P. 14. Available at: <https://ccondem.org.ec/wp-content/uploads/2021/05/EN-MUINE-NOS-QUEDAMOS-PDF-LIBRO.pdf>

15 Idem. P. 48.

16 C-CONDEM (2007). *Certificando la destrucción*. Quito: Fundación ICO. P. 48. Available at: <https://ccondem.org.ec/wp-content/uploads/2021/05/certificando-la-destruccion-92-1.pdf>

RIGHT TO FOOD AND NUTRITION AND RIGHT TO WORK

Declining fish populations are preventing fishers and gatherers from catching enough to feed their families and earn a living. Many community members have been pushed into the shrimp industry, with numerous women taking low-paying jobs to supplement household income. The struggle to secure food and sell the remainder for income threatens livelihoods and undermines food sovereignty. These economic pressures worsen already dire conditions in Muisne and have forced some fishers and gatherers to migrate to urban areas in search of alternatives.

Two factors have aggravated this situation. First, the near disappearance of mangrove species such as conch and crab, traditionally gathered by women, has increased their market value and reduced local consumption. Gatherers now sell these species rather than consume them, turning instead to low-nutrient supermarket foods. This shift strains household budgets and increases dependence on food produced outside the community. Second, rising sea levels have caused saltwater intrusion into agricultural land, leading to reduced food production. Together, these factors erode food sovereignty and threaten the right to food and nutrition of sea and mangrove peoples.

The sharp decline in aquatic biodiversity further undermines local food security. Mangrove destruction, pollution, and climate change impacts, including rising sea temperatures and disrupted weather, have drastically reduced species consumed locally. Fishers and gatherers report that lisa (*Mugil liza*) and jaiba verde (*Callinectes bellicosus*) are now rarely seen. As one community leader explained, “You hardly ever see it nowadays. When we were little, there was a lot of it. In some places there is none, in others it is hardly seen at all. It is on the way to extinction.” Other species such as mullet and cagua (*Diplectrum labarum*) have either disappeared or moved farther offshore. This loss of traditional species deepens dependence on imported food and erodes cultural identity tied to local diets.

RIGHT TO TERRITORY

Sea level rise is steadily encroaching on the territories of sea and mangrove peoples in Muisne. It has inundated fishing villages and agricultural lands, flooded homes and communal spaces, and rendered once-fertile land unusable. Locals first noticed these impacts in 1998, and they became more severe after 2000. In recent years, artisanal fishers and gatherers have seen their post-harvest spaces disappear beneath the water.

Las Manchas Island, located in the same estuary and geographically connected to Muisne Island, faces an even more critical situation. The village of Las Manchas has been completely destroyed by advancing seas. Although residents first observed the impacts in the early 2000s, conditions deteriorated dramatically after the 2016 earthquake. Since then, the community has endured constant encroachment by the sea, and today the village is almost entirely submerged. Residents have been forced to abandon their homes, fishing territories, and ancestral lands.

This dispossession is compounded by the expansion of the shrimp industry, which continues to seize artisanal gatherers' territories for aquaculture ponds. Industrial fishing vessels also intrude into areas legally reserved for artisanal fishing, further displacing local communities. Together, these pressures threaten both the territories and the survival of sea and mangrove peoples.

RIGHT TO CULTURE

The destruction of sea and mangrove peoples' territories is erasing their cultural heritage and ways of life. In Muisne, sea level rise has begun to encroach on the local cemetery, progressively destroying this sacred site. The loss of the cemetery undermines community integrity by weakening ties to ancestors, collective memory, and spiritual traditions.

In Las Manchas, the gradual submergence of the island has severed connections to land, water, and traditional practices, eroding the community's cultural identity and continuity.

RIGHT TO HEALTH

The population of Muisne already suffers from dengue and malaria, a threat intensified by heavier rainfall that creates stagnant water and expands mosquito breeding grounds.



The government of Ecuador has failed to respect and protect the human rights and ways of living of sea and mangrove peoples. It has also neglected the mangrove forests on which these communities depend, despite enacting multiple laws, agreements, and regulations intended to safeguard them.¹⁷ For example, the 1981 Law on Forestry and Conservation of Natural Areas and Wildlife (24-VIII) declared mangroves national public goods for non-commercial use (Article 1) and part of the National Heritage of Natural Areas of the State (Article 70).¹⁸

¹⁷ C-CONDEM (2007). *Certificando la destrucción*. Quito: Fundación ICO. Pp. 110-11. Available at: <https://ccondem.org.ec/wp-content/uploads/2021/05/certificando-la-destruccion-92-1.pdf>

¹⁸ Idem. Pp. 109-10.

At the same time, the government has promoted aquaculture as a strategic economic sector, supporting it through tax reductions, tariff cuts, regulatory exemptions, and growth-oriented policies.¹⁹ Although mangroves are legally protected, the shrimp industry has expanded across Ecuador's coast by clearing them with impunity. The state has not only failed to enforce environmental protections, it has also actively authorized aquaculture in mangrove areas. In 1990, an inter-ministerial agreement granted licenses for aquaculture in mangroves, effectively legalizing deforestation. This policy was reinforced by Presidential Decree No. 1391 in 2008, signed by then-President Rafael Correa.^{20 21}

Ecuador's response to the climate crisis and the impacts of the shrimp industry has been insufficient. Although the government adopted a National Climate Change Strategy (2021–2025) and a National Adaptation Plan (2023–2027), fishers and gatherers in Muisne have not seen concrete measures implemented in their territories.²² The only state response to shrimp industry impacts has been the creation of protected areas under the “Socio Manglar” program, which transfers management to private actors.²³ The government claims this fortress conservation model supports environmental protection and reduces national debt. In practice, however, these protected areas are often imposed without prior warning or consent, resulting in the dispossession and privatization of the territories of sea and mangrove peoples in Muisne and across Ecuador.

19 Idem. Pp. 109–10.

20 Idem. P. 112.

21 C-CONDEM (2008) *La privatización del manglar*. ICSF, November 2008. Available at: https://www.icsf.net/wp-content/uploads/2022/06/Ecuador_SP.pdf

22 Machado, C. and Bonilla-Bedoya, S. (2024) *Adaptación al cambio climático en Ecuador: análisis del marco normativo y su concordancia con la normativa internacional*. *CienciaAmérica*, 13(1), pp. 119–135. DOI: <https://doi.org/10.33210/ca.v13i1.465>

23 Ministerio del Ambiente, Agua y Transición Ecológica (s.a.) *Ministra Lorena Tapia dio inicio al programa de conservación Socio Manglar*. Estado de la República del Ecuador. Available at: <https://www.ambiente.gob.ec/ministra-lorena-tapia-dio-inicio-al-programa-de-conservacion-socio-manglar/>

In response to the ecological, economic, and social harms caused by shrimp aquaculture, intensified by climate change, sea and mangrove peoples have not remained passive. They have consistently and loudly demanded the full socio-ecological restoration of marine and mangrove ecosystems. To advance this goal, communities in Muisne founded the Ecological Defence Foundation (FUNDECOL) in 1989 to restore mangrove forests in the Muisne River estuary.²⁴ On July 26, 1998, FUNDECOL helped establish the National Coordinating Corporation for the Defence of the Mangrove Ecosystem (C-CONDEM), drawing national and international attention to the alarming destruction of Ecuador's mangroves.²⁵ Their call resonated globally, and in 2015 UNESCO declared July 26 the International Day for the Conservation of Mangrove Ecosystems.^{26 27}

C-CONDEM was created to expand restoration efforts along Ecuador's coast, and together with FUNDECOL, has achieved major successes. Since 1992, sea and mangrove communities have restored more than 7,000 hectares of mangrove forest. By reviving this ecosystem, they have also revived livelihoods, traditional practices, and a vital natural defense against the growing impacts of climate change.

Communities have also organized through local and national networks to push for legal recognition of their rights. One effort centered on the Mangrove System Conservation Act (Ley de Conservación del Sistema Manglar). Fishers and gatherers organized demonstrations, events, and meetings to promote the law, culminating in a mobilization in Quito where they presented it to the National Assembly. Although debated several times, the law was ultimately rejected in 2010. Artisanal communities also fought to influence fisheries regulations, but their perspectives and proposals were often dismissed.

Sea and mangrove peoples continue to demand repayment of the social, ecological, and cultural debt owed to their communities for the harms they have endured. Yet instead of supporting them, the state has targeted leaders and environmental defenders through the courts. Repression has intensified in recent years, making it increasingly difficult to resist the shrimp and fishing industries. Large demonstrations are now heavily restricted, and growing persecution has forced some defenders to leave the country.

²⁴ Fundación de Defensa Ecológica de Muisne, in Spanish.

²⁵ Corporación Coordinadora Nacional de la Defensa del Ecosistema Manglar, in Spanish.

²⁶ World Rainforest Movement (2006) *Commemorating the Mangrove Action Day on July 26th*. WRM. Available at: <https://www.wrm.org.uy/bulletin-articles/commemorating-the-mangrove-action-day-on-july-26th>

²⁷ UNEP (2023) *Día Internacional para la Conservación del Ecosistema de Manglares*. UNEP. Available at: <https://www.unep.org/es/events/campaign/dia-internacional-para-la-conservacion-del-ecosistema-de-manglares>

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