

COLOMBIA

Flooding in La Mojana

CRISIS IMPACT OVERVIEW

La Mojana's vulnerability to flooding is multidimensional, involving variables such as geography, deforestation, mining, and poor infrastructure (France 24 25/05/2024). Since 2021, La Mojana has experienced recurrent flooding; the Cara de Gato dam in San Jacinto del Cauca municipality, Bolívar department, has broken down on several occasions under heavy rains and high river discharge in the subregion (ET 16/05/2024; OCHA 10/05/2024). According to the Ombudsman's Office of Colombia, between August 2021 and January 2023, rainfall and floods affected at least 500,000 people, damaged over 3,000 homes and seven health centres, destroyed 500 homes, and damaged or destroyed 72 educational centres, along with other public infrastructure such as vehicle and pedestrian bridges. These climate events also led to the loss of 47,000 hectares of crops during the same period (IFRC 13/09/2023).

In May 2024, heavy rains caused the failure of the Cara de Gato and Los Arrastres dams. This caused severe flooding that affected at least 32,100 people (11,000 families), including 12,000 children, and the loss of at least 35,000 hectares of crops (OCHA 10/05/2024; ET 09/05/2024; W Radio 08/05/2024; Radio Nacional de Colombia 06/05/2024). By 13 May, landslides blocked roads between Quibdó (Chocó department) and Pereira (Risaralda department), as well as between Bogotá and Girardot (Cundinamarca department), hampering aid delivery (El País 13/05/2024). According to the National Unit for Disaster Management (UNGRD), the Cara de Gato dam will not be able to close this year without a decrease in river flow, which is unlikely with the arrival of La Niña and the second rainy season in Colombia (EE 03/07/2024). The delay in dam repairs is also linked to a corruption case investigated by the Office of the Comptroller General, which dates to the floods of 2021 (ET 14/05/2024; Semana 03/03/2023). Without the necessary repairs of the dam, there is a high probability that future floods would not be controllable and would significantly affect the surrounding communities and infrastructure.

By 11 July, another larger-scale flooding event had hit La Mojana. The dam failure and rainy season led to a large amount of water entering the area,

increasing the number of affected people to over 38,000 in San Jacinto del Cauca (Bolívar department), Ayapel (Córdoba department), Caimito, Guarandá, Majagual, San Benito Abad, San Marcos, and Sucre (Sucre department) (OCHA 16/07/2024). Until 31 July, access constraints limited the granular information available on the impact and needs across the affected municipalities.

La Mojana is a subregion of northern Colombia comprising 11 municipalities across the departments of Antioquia, Bolívar, Córdoba, and Sucre. This delta region is a convergence point for the waters of three major rivers: Cauca, Magdalena, and San Jorge. It is known for its rich ecosystem of wetlands, swamps, streams, and forests, which plays a strategic role in balancing the natural environment. With its flat terrain, La Mojana is highly susceptible to flooding, which affects its population of over 450,000 people, half of whom reside in rural areas (MADS 21/03/2024). Illegal gold mining and deforestation also make the region increasingly flood-prone (SWI 25/05/2024).

Non-state armed groups (NSAGs), such as the Gaitanist Self-Defence Forces of Colombia (AGC) and the National Liberation Army (ELN), operate in Antioquia, Bolívar, César, Chocó, Córdoba, and Sucre departments within La Mojana, posing protection risks for the communities already affected by floods and humanitarian access constraints (El País 09/12/2023; Pares 13/10/2023).

ANTICIPATED DEVELOPMENTS/IMPACTS

Seasonal forecasts for the August–October period anticipate a high probability of above-average precipitation and temperatures in northern Colombia (WMO accessed 21/07/2024; IRI accessed 21/07/2024). On 19 July, the Institute of Hydrology, Meteorology, and Environmental Studies reported that northern Colombia will experience a 10–30% increase in rainfall from August–October (IDEAM 19/07/2024). This could affect La Mojana, which already receives up to 4,500mm of rain on average per year, significantly higher than the national annual average of 2,630mm (WB accessed 19/05/2024; BanRep 10/2004). Heavy rains could also cause the San Jorge and Magdalena Rivers in La Mojana to overflow, potentially increasing the number of affected individuals as in

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5.4
INFORM CLIMATE
CHANGE RISK SCORE

August 2021, when the overflowing of their waters affected more than 250,000 people (EE 03/07/2024). This would heighten humanitarian needs and overwhelm the response capacity of national and local authorities (Infobae 06/05/2024; OCHA 28/08/2023).

La Niña typically increases precipitation and river flow, posing navigation challenges. If La Niña develops before the August–October period (70% chance), it may complicate humanitarian aid delivery and limit the speed and quantity of assistance to the most affected areas (CPC 29/07/2024).

With the erosion of the banks of the Cara de Gato and Arrastres dams, river levels are expected to exceed the 2.5m average recorded in previous years (OCHA 16/07/2024). River erosion results from large water flows loosening river beds and slopes (UNGRD 13/07/2021).

NSAGs restrict people's movement in areas under their control (ACLEDD 23/03/2023). As a result, humanitarian organisations often have to avoid certain areas to ensure their safety, leaving affected populations without assistance.

CRISIS IMPACTS (CURRENT AND ANTICIPATED)

Shelter

Since May 2024, the flooding has left portions of the populations in San Jacinto del Cauca and Guarandá municipalities without housing. By 16 May, the floods had destroyed 766 houses and required the evacuation of over 2,600 people despite there being only one temporary shelter in Bolívar (UNGRD unpublished a; UNGRD unpublished b). Given insufficient temporary shelters, people have had to stay with friends and families (Pulzo 09/05/2024; ET 19/05/2024). As a coping mechanism, communities are building their own makeshift shelters and informal settlements along the roads (KII 18/06/2024). The rising water level in rivers would likely pose a threat to existing shelters and informal settlements.

By 20 May, there were reported displacements of affected people to neighbouring municipalities, such as Ayapel, Córdoba, though specific displacement figures were unavailable (La Razón 13/05/2024). The damage of 20 roads and five vehicular bridges has aggravated the situation (UNGRD unpublished b).

Between 2021 and November 2023, floods damaged 10,954 homes and destroyed 407, increasing communities' vulnerability to related events (UNGRD unpublished a). In May 2024, some municipalities, such as Guarandá in Sucre, implemented preventive measures, such as the construction of earthen mounds (camellones), to mitigate the impact of future floods (KII 18/06/2024). There is no information on the effectiveness of these measures and whether they have allowed displaced people to return to these areas.

The deterioration of houses from past events increases people's risk of becoming unhoused during future rainfall and floods. This may result in a higher number of people needing shelter in the coming months. A potential shortage of shelters could lead to increased displacement to nearby municipalities with more housing options or to more people living in precarious conditions along main roads.

Food security and nutrition

By early June, people had no livelihoods, and access to food was critical. Communities had exhausted their food reserves, particularly of rice and corn, and some had sold their animals at very low prices. The lack of resources had also forced families to leave their animals covered by water, increasing the risk of diseases (FAO et al. 06/06/2024). Although some families managed to move their livestock to higher ground where they would be safe from flooding, the moving process had led to the death of animals on the roads (KII 18/06/2024). By 16 May, over 7,000 heads of cattle in Córdoba and Sucre were left without grazing land (UNGRD unpublished b). Around 40,000 livestock were also displaced earlier that month (Pulzo 09/05/2024; DP 07/05/2024).

By 7 May, flooding had destroyed at least 35,000 hectares of rice and subsistence crops, vital for the self-sustenance of the affected population. The damage has left farmers without their primary food sources and income (DP 07/05/2024). The loss of crops, which were in the harvest stage in May, poses significant risks to food security. Heavy rains, which can also trigger further flooding, are expected to continue until August 2024. The resulting conditions will hinder the reconstruction of crops and livelihoods for the affected population, as the harvest period for maize extends until August and for rice until mid-September (ACAPS accessed 30/07/2024). During the 2021 flood events, crop losses resulted in food being the main need in affected communities (ONU Colombia 21/10/2021).

By 16 May, the status of the public market was unclear, although it is likely non-functional in municipalities such as Guarandá, Majagual, Sucre, Caimito, San Benito Abad, and San Marcos (Sucre), where much of the area remains inundated (ET 16/05/2024).

The floods could increase the vulnerability to food insecurity of communities already affected by similar events, worsened by delays in the repair of the Cara de Gato dam. In La Mojana subregion, particularly in Bolívar, Córdoba, and Sucre departments, at least 40% of the population currently faces moderate and severe food insecurity (WFP 13/05/2024). In a survey conducted between 20–30 April 2024, 99% of the respondents in La Mojana communities reported not having agricultural input reserves to prepare for the rainy season (3iS 27/05/2024). Those who have lost access to their crops or livestock because of the current crisis can be at a higher risk of malnutrition during the rainy season. The 2021 floods already put 62,000 people at risk of food insecurity and malnutrition, highlighting the severe and continuing impact of these kinds of events on the region's food security (OCHA 28/08/2023).

The destruction of crops and livestock in 2021, May 2024, and most recently in July has severely affected the livelihoods of the affected communities. They have had to reduce their daily food consumption, increasing the risk of malnutrition, and face greater difficulties in rebuilding their livelihoods after each flood (ONU Colombia 21/10/2021). Children are particularly vulnerable, facing potential cognitive development issues, weakened immune systems, and increased childhood morbidity (WVU 07/09/2023).

The presence of armed groups further intensifies the situation, restricting mobility and access to resources. The loss of livestock and crops because of a lack of pasture and feed, combined with disrupted transportation from poor infrastructure, can lead to reduced daily meals and increased food insecurity, similar to the post-flood emergency that La Mojana experienced in 2021 (OCHA 16/07/2024).

WASH and health

The lack of safe drinking water is the main WASH-related issue, especially for rural communities, who access water through wells and micro-arrangements irrigated by groundwater; the floods have presumably destroyed or rendered many of these wells unusable (PNUD 25/03/2022; Noticias Caracol 17/05/2024). Around 49% of the population does not have access to drinking water (PNUD accessed 17/05/2024). The damage of the dam has also affected 14 rural aqueducts in Sucre and Cordoba (UNGRD unpublished b).

According to a Health Cluster survey carried out in La Mojana in June 2024, the number of health centres is insufficient to cover the area, with 90% of the people in the communities surveyed living more than an hour away from the nearest health centre. The rural communities surveyed reported transportation as the main barrier to accessing healthcare (Health Cluster et al. 25/06/2024).

Flooding, in combination with abnormally high temperatures, can lead to increased cases of vector-borne and waterborne diseases, particularly dengue and bacterial and parasitic diarrhea, as affected people rely on unsafe and contaminated water sources (3iS et al. 25/04/2024). The floods have caused water contamination with sediment from river flow and erosion, mining, logging, agriculture, and livestock activities. In 2024, it has been estimated that 2 tons of sediment flowed from rivers annually (Cambio 19/05/2024). Skin infections, tetanus, hepatitis A, typhoid, cholera, and infectious diarrhea are some of the diseases that can result from drinking contaminated water (ACH 14/11/2022).

Children face heightened vulnerability to health issues and diseases as their immune systems are still developing and may not respond as effectively to infections and vaccinations as those of adults. A June 2024 Health Cluster report identified children as the most vulnerable population group, primarily presenting with respiratory infections, diarrhea, and malnutrition. The report also identified over 130 people with disabilities and 71 pregnant women as having potential difficulties in accessing adequate medical care in the case of a deterioration in their health (Health Cluster et al. 25/06/2024). Since 2021, mental health cases, including depression, anxiety, and suicide attempts, have been reported as a result of the impact on livelihoods and socioeconomic conditions (OPS 06/05/2024).

Rainfall increases *Aedes albopictus* mosquitoes and provides the ideal environment for breeding *Aedes aegypti* eggs, especially in areas with stagnant water, which is currently happening in most of San Jacinto del Cauca. This creates more dengue-transmitting mosquitoes, meaning dengue cases can be expected to rise in La Mojana subregion (3iS et al. 25/04/2024). In 2023, there were 3,000 cases in Sucre; between April–May 2024, Bolívar authorities reported 2,165 cases (El Heraldo 21/11/2023; W Radio 23/04/2024).

The increased sedimentation and contamination of water sources could lead to more widespread waterborne diseases. Limited access to clean water may continue to strain health services, particularly in rural areas where infrastructure is already insufficient. Persistent wet conditions could also heighten the risk of vector-borne diseases, potentially leading to outbreaks of dengue and other mosquito-borne illnesses. The compounded stress may further degrade mental health conditions among the affected populations.

Access to safe water may remain a critical issue in La Mojana, affecting food preparation and personal hygiene, with a disproportionate effect on women. Women's personal hygiene is heavily impacted by water scarcity. This includes menstrual hygiene management, which becomes more challenging without adequate clean water and sanitation facilities. Limited access to safe water can also complicate cooking and increase the risk of foodborne illnesses and the reduction of overall household food security (WHO 06/07/2024). Skin conditions and infections among children will also persist. The need for essential WASH supplies and community support remains as urgent as in 2021, highlighting the necessity of sustained efforts to improve water management, hygiene practices, and environmental sustainability in the affected communities.

Education

The floods of previous years have already affected the educational infrastructure. There are educational facilities with roofs in poor condition and no access to drinking water and toilets (El Tiempo 28/02/2024). By 16 May 2024, there were ten flooded schools reported in the municipalities of Guarandá and Majagual in Sucre (UNGRD unpublished b). Most of the schools suspended classes, and school meals were temporarily paused for students (KII 18/06/2024). There is limited information on the educational impacts and needs in other concerned areas. In June 2023, 400 students were commuting to school amid flooding, arriving with wet shoes and clothes. This situation exposed them to the risk of illnesses and falling into floodwater (ET 14/06/2023).

The emergency has caused family separations, with men and women moving to other communities in search of day labour to earn income, leaving children and adolescents at home without family support, which risks their chances of returning to school. This issue is reminiscent of the 2021 floods, which similarly disrupted education and family structures. The recent flooding in 2024 is likely to aggravate these problems, also increasing the risk of child recruitment, exploitation, and use by armed groups, as seen in past emergencies (OCHA 16/07/2024).

The rains and flooding are likely to further affect educational infrastructure. Schools with already damaged roofs and inadequate facilities may face more severe structural issues. Continued flooding could lead to more class suspensions and interruptions in school meal programmes, affecting students' learning and nutrition. The persistent risk of commuting through flooded areas may also increase absenteeism and health issues among students.

COMPOUNDING/AGGRAVATING FACTORS

Prevalence of poverty

The region's high poverty levels (80%) are likely to aggravate the challenges that affected people face in accessing the economic ecosystem, obtaining food and other essential items, and rebuilding their homes following flooding (PNUD accessed 17/05/2024; Gobernación de Sucre 14/12/2022).

Poverty in La Mojana stems from disconnection from the country's main economic centres given the access constraints resulting from the subregion's geographical characteristics and insufficient infrastructure, the longstanding presence of NSAGs, and the impacts of internal armed conflict (PNUD accessed 19/05/2024).

Previous droughts

In April 2024, La Mojana was facing droughts resulting from El Niño, above-average temperatures in large parts of the country (ET 23/04/2024; La Razón 17/04/2024). The main consequences of the drought included the death of thousands of livestock, limited irrigation for subsistence and commercial crops, and a lack of supply of fish in the rivers. In the first months of 2024, drought and high temperatures left over 2,000 families dedicated to fishing without their livelihoods (Health Cluster et al. 25/06/2024). These impacts have heightened food insecurity and economic hardship, as livestock, agriculture, and fishing are the three main activities in the area (ET 23/04/2024; La Razón 17/04/2024). The wetlands system in La Mojana has also become increasingly flood-prone given landcover changes (FAO 10/06/2024). Drought itself makes the ground less water-absorbent, making the region more vulnerable to flooding. Overall, people whose livelihoods were affected by the drought have become more vulnerable to the effects of flooding.

Presence of non-state armed groups

Illegal economies, such as drug trafficking and illegal mining, are the primary drive behind NSAG control over La Mojana. Illegal mining heightens the effects of flooding. Dredging significantly alters river dynamics by making water levels increasingly shallow and disrupting their natural flow while also contaminating the waters with mercury, further degrading the environment and increasing flood risks (France 24 25/05/2024).

In February 2024, reports indicated that the AGC had total control over some municipalities in La Mojana, such as San Jacinto del Cauca (DP 21/02/2024). The AGC exerts control in various ways, such as through security measures that result in heightened violence, recruitment, displacement, and mobility restrictions. The AGC can also disrupt local economies through extortion, illegal taxation, and coercion into illicit activities. Overall mobility restrictions, also resulting from flooding and poor infrastructure, limit residents' ability to seek safety or access essential services. NSAG control in La Mojana has also created significant obstacles in the repairs of the Cara de Gato dam. Contractors face extortion from these groups, who demand bribes and protection payments, which not only increase costs and cause delays but also serve as a means of financing and reinforcing their control. This intimidation disrupts repair efforts and aggravates the region's infrastructure challenges while strengthening the NSAGs' economic power and influence (DP 21/02/2024; ET 10/03/2022).

Floods heighten the risk of confinements in the territory through the combination of the mobility restrictions imposed by NSAGs, rising river water levels, and poor road infrastructure. These restrictions significantly limit people's opportunity to leave the territories, forcing them to coexist with armed groups without being able to report what happens in their municipalities (ACAPS 02/05/2024).

HUMANITARIAN RESPONSE

Humanitarian constraints

July 2024 recorded five humanitarian access restrictions resulting from the physical conditions of the territory, including damage to main roads and bridges. Some communities have blocked roads to demand a rapid response from the Government, complicating access for various humanitarian organisations. NSAG presence in the region and its proximity to areas historically facing armed conflict, such as southern Bolívar, southern Córdoba, and the Montes de María, also pose risks to humanitarian access. Similar disruptions occurred in 2022 when armed groups carried out armed strikes that affected humanitarian operations (OCHA 16/07/2024).

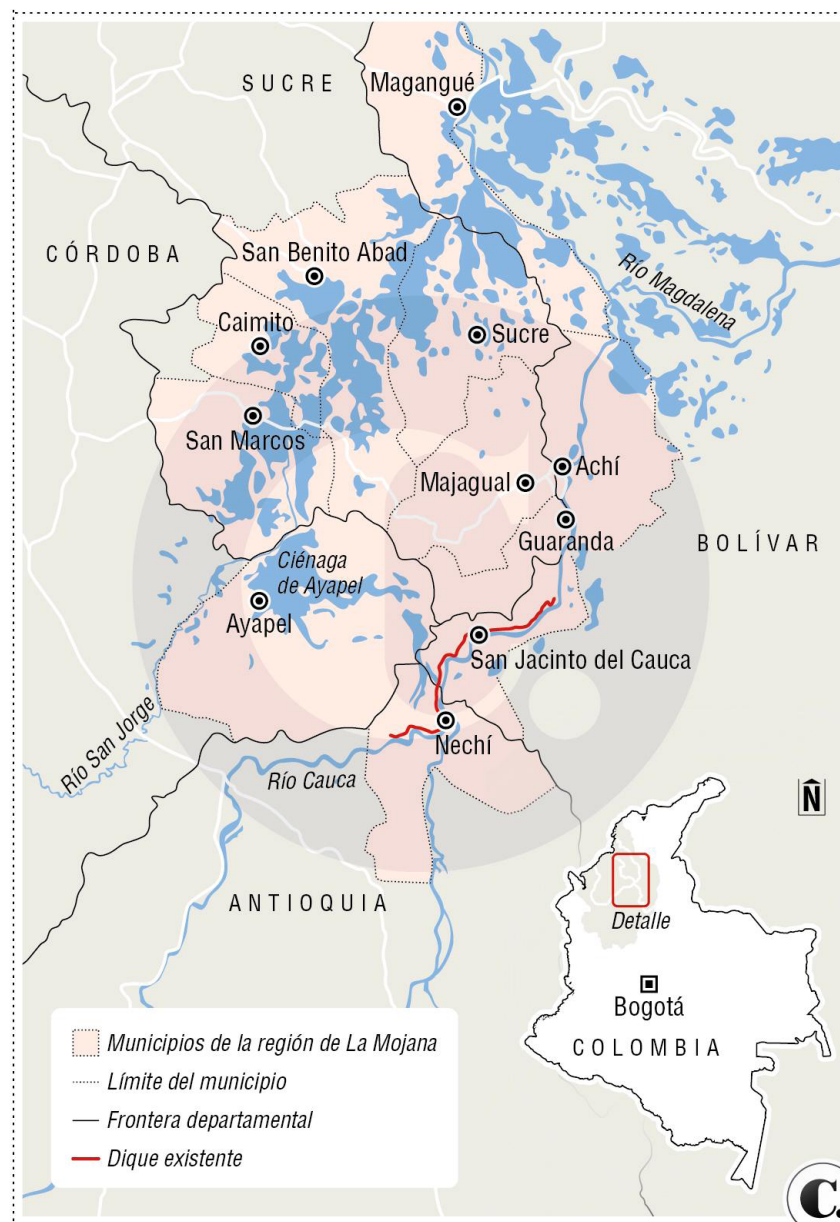
Funding and response capacity

By 16 July, UNGRD had provided provisions, cooking kits, and hygiene kits in one municipality in Bolívar. The unit also implemented measures to promote economic recovery, clean up the water and soil, and improve and rebuild housing in the subregion, although detailed information on these actions is not available (OCHA 16/07/2024). By May 17, the Government had strengthened the Support Agricultural and Livestock Fund to channel monetary resources to support those affected by the current floods, instructing the Colombian Agricultural Institute and the National Authority of Aquaculture and Fisheries Authority to support affected fishermen and livestock farmers through resource allocation. The support includes expedited land purchases to address the needs of those affected by flooding in La Mojana (EE 18/05/2024).

By 16 May, the national authorities had evacuated more than 7,000 people from affected areas. These people faced the lack of sufficient shelters in evacuation areas (UNGRD 16/05/2024; Pulzo 09/05/2024; La Razón 13/05/2024; ET 16/05/2024). Initial UNGRD assessments to identify the most affected areas and determine the best ways to provide assistance determined the municipalities of San Jacinto del Cauca (Bolívar), Guarandá, Majagual, and Sucre (Sucre) to be under public calamity declarations, as confirmed by technical assessments from the relevant units (UNGRD 16/05/2024).

The Red Cross, UNDP, OCHA, and PAHO have been present in La Mojana in recent years. Between 2021–2022, La Mojana received a CERF allocation of USD 4 million. This allocation, together with the Humanitarian Response Plan, provided urgent assistance to more than 90,000 people (OCHA 10/05/2024).

Map 1. La Mojana subregion



Source: El Colombiano (26/04/2021)