

BANGLADESH

2023 dengue outbreak



KEY CONCERNS

All 64

DISTRICTS AFFECTED

170,000

CONFIRMED
CASES¹

822

DENGUE-RELATED
DEATHS²

0.49%

CFR
(HIGHEST IN THE WORLD)

FUNDING AND RESPONSE CAPACITY

National response capacity:

Ministry of Health and Family
Welfare, local government,
city corporations, BDRCS

International response capacity:

WHO, IFRC, UNICEF

BACKGROUND

Dengue fever is a viral infection transmitted primarily through the bites of infected female *Aedes aegypti* mosquitoes (WHO 17/03/2023 and 11/08/2023). Bangladesh has experienced sporadic dengue fever outbreaks since 1964 until the first large outbreak in 2000, with more than 5,500 confirmed cases (Sharmin et al. 01/09/2015; Rahman et al. 07/08/2019; Hossain et al. 11/07/2023). Dengue outbreaks usually coincide with the warmer months and monsoon season (May–September) (WHO 11/08/2023).

CRISIS IMPACT OVERVIEW

- Bangladesh is experiencing its largest and most severe dengue outbreak since the country began compiling data on cases in 2000 (TBS 26/08/2023; WHO 11/08/2023; AA 09/08/2023). As at 16 September 2023, nearly 167,700 confirmed dengue cases were reported, exceeding by over 66,300 the previous highest record of around 101,300 for the entire 2019 (DGHS 17/09/2023; WHO 11/08/2023; AA 09/08/2023).
- As at 16 September, the country had recorded 822 related deaths. The overall case fatality rate (CFR) was 0.49% (DGHS 17/09/2023). As at 2 September, the overall CFR in Bangladesh was the highest in the world for 2023 (Prothom Alo 03/09/2023).
- By 16 September, 44% of confirmed dengue cases and 69% of dengue-related deaths were reported in Dhaka city, where the CFR was around 0.77% (DGHS 17/09/2023).
- The dengue virus has affected all 64 districts of Bangladesh, but the ten with the most confirmed cases as at 16 September 2023 were Dhaka, Chattogram, Barishal, Patuakhali, Lakshmipur, Pirojpur, Chandpur, Manikganj, Cumilla, and Faridpur. In Dhaka city, the ten most affected areas were Jatrabari, Sabujbagh, Kadamtali, Mohammadpur, Khilgaon, Keraniganj, Cantonment, Uttara, Dhanmondi, and Pallabi (DGHS 17/09/2023; TBS 12/09/2023 a).

- As at 12 September, the virus had infected around 11,200 Rohingya refugees, causing 14 deaths (TBS 12/09/2023 b; WHO 04/09/2023; Health Sector 31/08/2023).
- Dengue patients need injectable saline solution, and healthcare facilities need more dengue testing kits, blood bags, platelet kits, staff, and beds to deliver proper care to dengue patients (Prothom Alo 17/09/2023; TBS 06/09/2023, 13/09/2023 a, 13/09/2023 b, and 04/08/2019; The Daily Star 27/08/2023; The Third Pole 10/08/2023; The Dhaka Tribune 13/09/2023; New Age 17/08/2023). There is an overall need to enhance the dengue case surveillance system across the country (The Daily Star 17/07/2023).
- The outbreak is disproportionately affecting poor households, resulting in a higher need for healthcare assistance (New Age 15/09/2023 and 14/09/2023; FE 19/08/2023; SANEM 29/03/2023; The Daily Star 01/08/2023).
- The Bangladesh Government has already requested international assistance for the provision of test kits, intravenous fluids, and laboratory equipment for early case detection and better case management for the current dengue outbreak (WHO 28/08/2023).
- WHO highlights that the prevention of mosquito bites is the best way to avoid getting dengue. National health and local government authorities, national NGOs, and international humanitarian organisations have taken initiatives to raise awareness regarding dengue preventive measures among the public; reduce breeding sites for *Aedes* mosquitoes; and, build the capacity of medical staff and volunteers. Entomologists and public health experts indicate that more initiatives with greater effectiveness are required in the country as the number of weekly confirmed dengue cases continues to rise (UNICEF 20/09/2023; IFRC 24/07/2023; WHO 28/08/2023 and 17/03/2023; New Age 12/07/2023; BSS 21/07/2023; FE 02/08/2023; DGHS 17/09/2023).
- According to media reports, behavioural changes among *Aedes* mosquitoes are rendering mosquito control measures ineffective (The Dhaka Tribune 15/07/2023; FE 15/08/2023; BSS 05/09/2023; TBS 21/07/2023). There is a need for more research to understand these changes and devise appropriate control measures.

Anticipated scope and scale

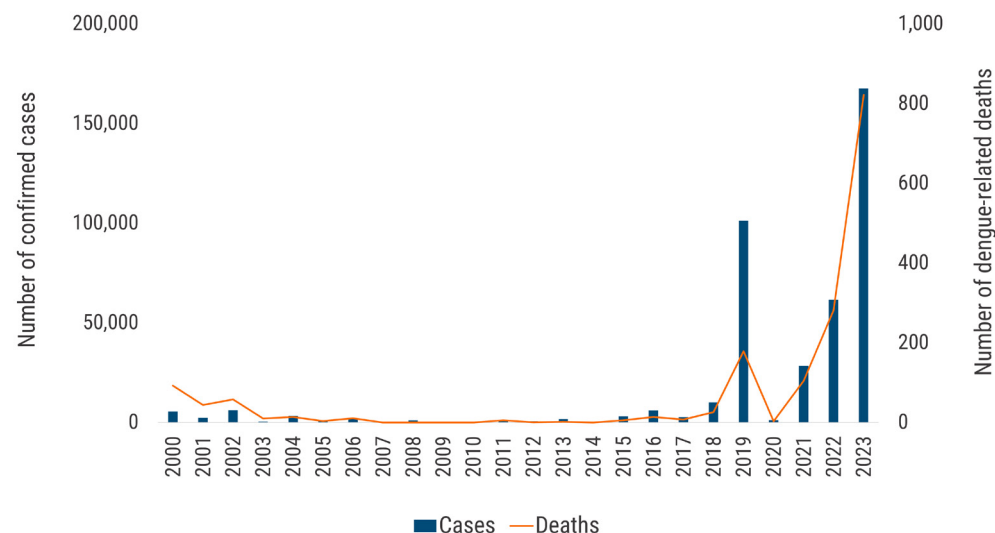
- Changing weather patterns induced by climate change are worsening the dengue outbreak (The Third Pole 10/08/2023). Even during drier weather after the monsoon seasons in Bangladesh, less rainfall does not always subdue the spread of dengue. The conditions allowing Aedes mosquitoes to thrive depend on a combination of temperature, humidity, and rainfall (TBS 26/08/2023). According to public health experts, the 2023 dengue outbreak could last until November (BDRCS 18/07/2023; The Dhaka Tribune 02/08/2023).
- Around 45% of the confirmed dengue cases in 2023 have been reported in Dhaka district, with almost all the cases being recorded inside Dhaka city (DGHS 17/09/2023). It is the first time that confirmed dengue cases outside Dhaka district have outnumbered those inside the district (the 55% of all cases) (The Daily Star 19/08/2023).
- Trends indicate that the number of weekly confirmed cases outside Dhaka city is rising, increasing by around 1.5 times, namely from around 8,500 to around 13,000, between 27 August and 16 September 2023 (DGHS 17/09/2023). Media reports suggest that the presence of Aedes mosquitoes and larvae in rural areas of the country has significantly increased compared to previous years (Prothom Alo 28/08/2023 and 04/09/2023).
- Rural areas lack adequate facilities for the test and treatment of the dengue virus and a significant portion of rural dengue patients in critical conditions need to reach facilities in bigger cities, especially Dhaka city, to receive treatment (WHO 28/08/2023; The Daily Star 05/09/2023). In this regard, the increasing spread of the dengue virus in rural areas can increase the rate of cases being left untreated or treated late.

Humanitarian constraints

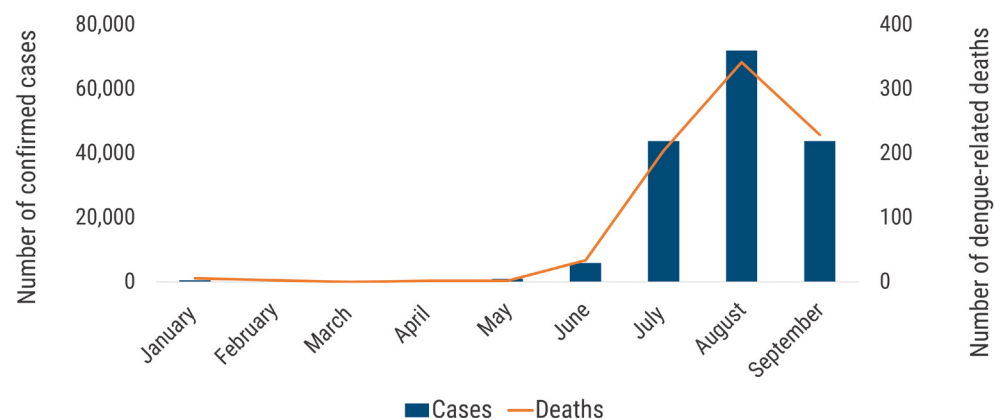
- National and international NGOs face several barriers regarding the formation, registration, and implementation of programmes because of administrative hurdles. These include convoluted registration and administrative processes resulting in delays, requiring an inordinately high minimum number of members to form an NGO, obstructions in the disbursement of foreign funds, delays in project approval, and the cancellation of registration (ICNL accessed 25/09/2023).
- Rohingya refugees in the Cox's Bazar refugee camps face movement restrictions in the camps, and reports show that there has been an escalation of harassment at checkpoints and while seeking healthcare. The refugees are also prohibited from leaving the camps (HRW 17/01/2023 and 04/04/2022; RFA 22/09/2023). Security forces set up checkpoints en route to the refugee camps, and these security checks may cause delays in the provision of humanitarian assistance.

- Although aid workers, security forces, and other authorities are present in the camps during the day, armed groups and gangs tend to take control at night (Prothom Alo 11/11/2021; The Daily Star 07/12/2021).

23 years of confirmed dengue cases and related deaths in Bangladesh, as at 16 September 2023



Number of monthly confirmed dengue cases and related deaths in Bangladesh in 2023, as at 16 September 2023



Source: ACAPS using data from Hossain et al. (11/07/2023); DGHS (17/09/2023)

HUMANITARIAN NEEDS

Healthcare assistance

The 2023 dengue outbreak has put pressure on the country's health system, highlighting underlying issues. These include a lack of medication, medical practitioners, hospital beds, medical kits, and an adequate dengue fever case monitoring system in hospitals or health facilities. Although humanitarian organisations are working to address some of these issues, such as the shortage of medical kits, significant gaps remain (UNICEF 20/09/2023; WHO 28/08/2023). On 20 September, UNICEF reported a total funding gap of around 47% for its dengue outbreak response in Bangladesh, with a 70% funding gap specifically for the health sector (UNICEF 20/09/2023).

Need for injectable saline solutions

As per media reports, there is a shortage of injectable saline solutions in both public and private hospitals and pharmacies (Prothom Alo 17/09/2023; TBS 06/09/2023, 13/09/2023 a, and 13/09/2023 b). The supply shortage has driven up the price of saline solution; in some cases, bags of saline solution cost as much as five times the standard prices in the country (TBS 13/09/2023 b; The Dhaka Tribune 12/09/2023; New Age 13/09/2023). Local supply capacity cannot meet the current demand for injectable saline solution, with some estimates indicating that only 50% of the demand in Dhaka city and only 30% outside are being met (TBS 13/09/2023 b).

Need for medical personnel and equipment

As at 2020, the bed-to-person ratio in public hospitals in Bangladesh was 0.32/1,000, less than 10% of the WHO recommended ratio of 3.5/1,000 for public hospitals. In private hospitals, the ratio was 0.54/1,000 (TBS 21/06/2021; DGHS 06/2020).

In 2020, the number of medical staff (physicians, nurses, and midwives) per 1,000 people in hospitals in Bangladesh was 1.2, against the WHO recommendation of 2.5 (WB accessed 18/09/2023; WB accessed 19/08/2023). In the same year, there were around 73,000 registered nurses against an estimated demand of 300,000 (TBS 02/05/2022). The current dengue outbreak is overwhelming hospitals in Bangladesh with the arrival of patients, who need constant blood pressure checks and saline hydration drips. There are not enough nurses to provide sufficient care for these patients. Some media reports suggest that in some hospitals, four to five nurses per shift are looking after 100 to 200 patients daily (The Daily Star 27/08/2023; The Third Pole 10/08/2023). Given the scarcity of beds, many dengue patients are being treated on hospital floors and balconies (The Daily Star 09/08/2023; The Dhaka Tribune 27/07/2023).

Need for dengue testing kits, blood bags, and platelet kits

A shortage of testing kits (especially the antigen tests used to detect the disease at its early stages) is disrupting dengue detection across various hospitals and diagnostic centres in the country (The Dhaka Tribune 13/09/2023; New Age 17/08/2023; TBS 04/08/2023). The Directorate General of Health Services (DGHS), a government directorate under the Ministry of Health and Family Welfare responsible for health services in the country, generally supplies dengue testing kits to public hospitals. With the 2023 dengue outbreak, the directorate general's supplies rapidly got depleted as the demand exceeded their stocks; as a result, they have asked hospitals to buy kits directly from suppliers (New Age 17/08/2023). There have also been delays in test reports as the requests overwhelm government pathology labs (The Daily Star 23/07/2023 and 01/08/2023).

Hospitals and blood banks are facing challenges in meeting the increasing demand for platelets given shortages of blood bags and platelet kits (medical devices that collect and separate platelet-rich plasma from the blood). At the same time, medical experts have advised against doctors unnecessarily giving platelets to many dengue patients, which occurs with doctors who are too cautious or who concede to the requests of overly anxious relatives of patients (TBS 21/07/2023; The Dhaka Tribune 10/07/2023 and 26/07/2023).

Need for enhanced surveillance of dengue cases

A lot of dengue cases in public and private hospitals and clinics go unrecorded, meaning the exact number and location of dengue cases remain unclear. According to the DGHS, only 125 public and private hospitals out of at least 15,000 public and private hospitals, clinics, and diagnostic centres in the country are regularly reporting dengue-related data to the directorate (The Daily Star 17/07/2023; DGHS 06/2020).

At the same time, an estimated 70–80% of dengue patients are asymptomatic, requiring serosurveillance tests (blood tests that detect the presence of antibodies) (WHO 11/08/2023; The Daily Star 17/07/2023). The scientific community in Bangladesh is advocating the development and implementation of a national vector control guideline to control the Aedes population in the country and stem future outbreaks (The Daily Star 17/07/2023).

Need for healthcare assistance among poor households

Media sources report higher infection incidence and casualties among poorer households. These households usually cannot afford admission to private facilities and seek medical help in public hospitals, which generally have a shortage of nurses and doctors, a lack of proper equipment, and poor management. These hospitals account for around 60% of dengue hospital admissions and 75% of dengue-related deaths in Dhaka city (New Age 15/09/2023). Some of the poor borrow to meet medical expenses, building their debt pressure (FE 19/08/2023).

Bangladesh has been experiencing a high inflation rate, which has exceeded 9% since March 2023. It reached a decade high of 9.94% in May and was at 9.92% in August (SANEM 29/03/2023; CPD 11/09/2023). In August, food inflation skyrocketed to its highest in 12 years, reaching 12.54% from 9.8% in July (The Daily Star 11/09/2023 and 06/08/2023). Such high inflation rates disproportionately affect poor households and put extra burden on those already incurring unaffordable medical costs from dengue infection (SANEM 29/03/2023; The Daily Star 01/08/2023; New Age 14/09/2023).

AGGRAVATING FACTORS

Delayed admission to hospitals

Delayed admissions to hospitals contribute to the high death rates. Around 80% of dengue-related deaths in 2023 have been within two to three days of hospitalisation (TBS 04/09/2023). Young people in particular do not consult medical practitioners until the symptoms get severe. The DGHS also noted that many people are neglecting their symptoms and are not getting tested, instead purchasing medication from unqualified medical practitioners or drugstores (Prothom Alo 03/07/2023; TBS 04/09/2023).

Suitable urban environment for mosquito breeding

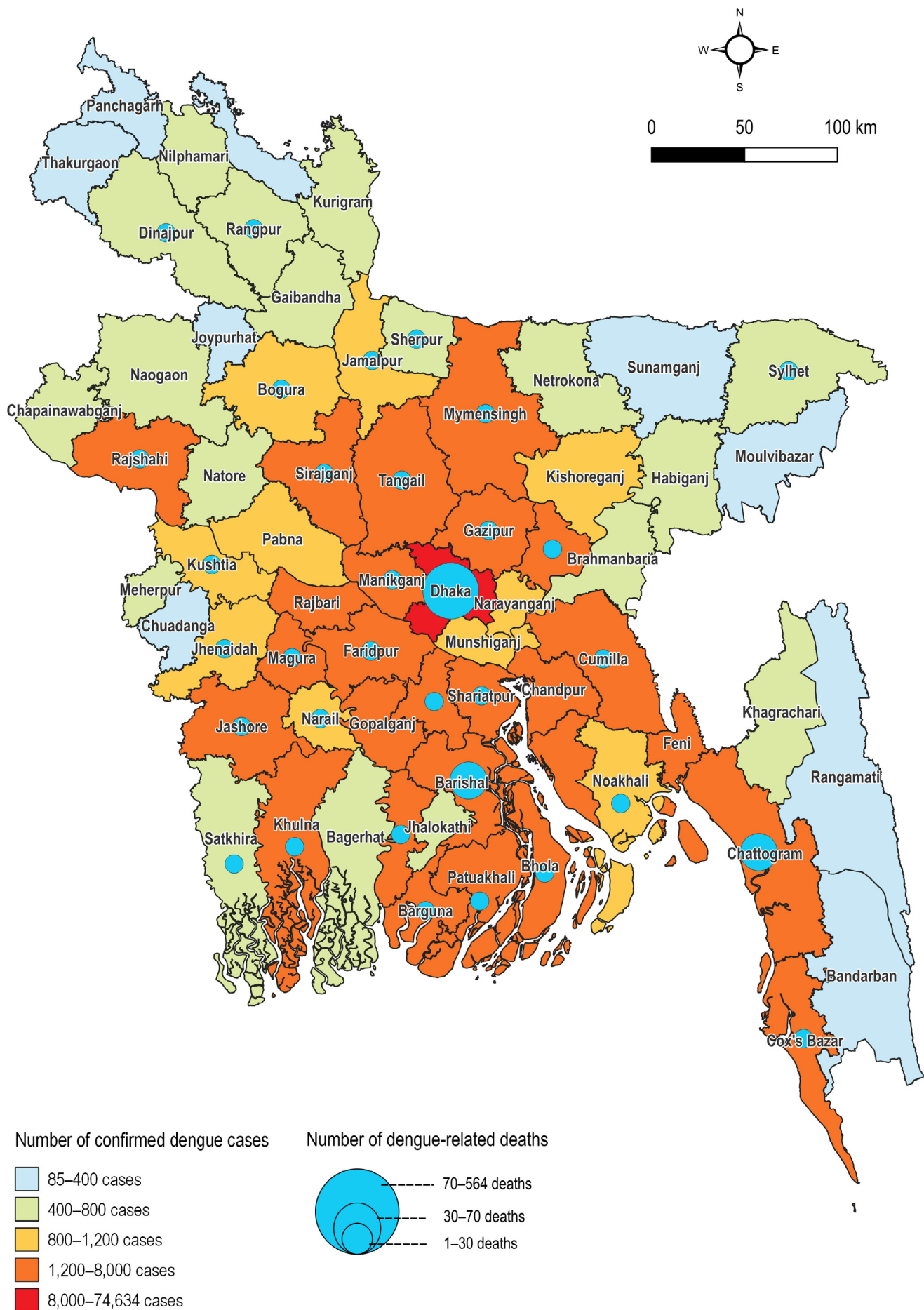
During the monsoon season, downpours create multiple breeding spots for Aedes mosquitoes. Poor urban planning, dense settlements, and poor WASH and waste management systems have contributed to the worsening of the dengue outbreak in Bangladesh. A 2019 DGHS survey showed that three of the most common breeding areas for Aedes mosquitoes were discarded tires, flooded floors (basement or otherwise), and plastic drums; others included flower tubs and trays (The Daily Star 23/06/2023; The Third Pole 10/08/2023; TBS 26/08/2023).

Need for a more integrated and coordinated response to control the mosquito population

As of now, the efforts of health and local government authorities and international humanitarian and public health organisations to curb the spread of Aedes mosquitoes have appeared to be insufficient or slow. Entomologists and public health experts have thus indicated the need for a more integrated and coordinated national Aedes mosquito control plan, especially in terms of collaboration between local government authorities and healthcare authorities, as well as a proper surveillance system to monitor mosquitoes (TBS 08/07/2023 and 06/08/2023; The

Daily Star 23/06/2023). As per entomologists, when the Aedes mosquito population declined after October 2022, the authorities did not take any new initiatives to contain the population, possibly contributing to the new outbreak (The Daily Star 28/08/2023).

2023 DISTRIBUTION OF CONFIRMED DENGUE CASES AND RELATED DEATHS IN BANGLADESH PER DISTRICT



Source: ACAPS using data from DGHS (17/09/2023)