

A Case Study on the Impact of the July 2026 Flash Floods on Vegetable Supply Chains in the CHT–Chattogram

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Abstract

Beginning on 5 July 2026, exceptionally heavy monsoon rainfall combined with hill runoff to trigger flash floods across south-eastern Bangladesh. By 13 July, the United Nations had confirmed 51 deaths and 1.11 million people affected across ten districts (UN Bangladesh, 2026). Within the same fortnight, official assessments recorded 15,911 hectares of damaged cropland in Chattogram district alone, alongside 517 kilometres of damaged roads and 180 damaged bridges and culverts (The Business Standard, 2026a; The Daily Star, 2026a). This paper traces how those two shocks — one to production, one to the road network — travelled through the region's vegetable supply chain and surfaced as shortages and price spikes in Chattogram's kitchen markets over the following month. Drawing on government damage bulletins, humanitarian situation reports, and dated market surveys, we find that transport disruption, more than crop loss on its own, best explains how quickly and how far prices moved. We argue that Bangladesh's disaster-damage assessments — which currently report crop hectares and road kilometres in separate bulletins — would benefit from tracking the two together, and we close with three practical recommendations for shortening the recovery window.

Keywords: *supply chain disruption, vegetable supply, flash flood, Chattogram Hill Tracts, food prices*

1. Introduction

Every monsoon, some part of Bangladesh's south-eastern hill country floods. What changes from year to year is how badly, and for how long. The floods that began on 5 July 2026 turned out to be among the more severe recent instances of this pattern, driven by several days of intense rainfall compounded by runoff pouring down from the Chattogram Hill Tracts. By 11 July, at least 44 people had died across seven districts; two days later, the United Nations placed the toll at 51 dead and 1.11 million people affected across ten districts, with roads, bridges, and water systems damaged on a wide scale (UN Bangladesh, 2026).

Government agencies moved quickly to count the agricultural cost: 15,911 hectares of cropland damaged in Chattogram district alone within the first week (The Business Standard, 2026a). In parallel, the district's road authorities reported 517 kilometres of damaged roads and 180 damaged bridges and culverts within ten days of the first rains (The Daily Star, 2026a).

Numbers like these, taken on their own, do not tell us much. To understand the bigger picture, we need to connect the dots between a flooded field and an empty market stall. Vegetables offer a useful lens for making that connection, precisely because they are perishable: a meaningful share of what Chattogram city eats is grown a few hours away and trucked in overnight (The Daily Star, 2024), so the health of the roads matters almost as much as the health of the crop. This paper asks which mattered more this time — the damage to the fields, or the damage to the roads — and whether the public record lets us tell which one drove the price spikes that followed. We pursue this using only secondary, publicly verifiable data, since the growers, transporters, and traders involved were not reachable for interview at the time of writing.

2. Literature Review

Flood damage to Bangladeshi agriculture is well studied at the production level. Rahman et al. (2025) applied FAO damage-assessment methods to show how monsoon floods reduce rice and jute output nationally, and the July 2026 event has already generated a comparable body of official data: divisional records show summer-vegetable damage ranging from 143 hectares in Khagrachhari to 1,136 hectares in Rangamati (Dhaka Tribune, 2026a, 2026c), while Chattogram district's overall crop damage reached 15,911 hectares (The Business Standard, 2026a).

Considerably less has been written about what happens after the crop is damaged — in the process of getting the surviving harvest to market. Nahin et al. (2024) used Failure Mode and Effects Analysis to rank the rice supply chain's external vulnerabilities in Sylhet stage by stage, rather than treating a flood as one undifferentiated hit, and Islam et al. (2025) found that Bangladesh's poultry-feed shortages after supply shocks were driven mainly by transport and import bottlenecks rather than by farm-level shortfalls. Separately, Haque et al. (2023) modelled flood damage to rural roads in the Teesta basin and showed that such damage is a predictable function of flood depth and road structure — not an incidental footnote to the “real” agricultural story.

On the market side, Asha et al. (2022) found that Bangladeshi consumers' price increases are frequently driven by disruption and mark-ups accumulated across intermediate supply-chain layers rather than by production cost alone — a pattern with a clear precedent in Chattogram itself. In August 2024, flooding on the Dhaka–Chattogram highway triggered by rain in Cumilla and Feni cut the city's vegetable supply by an estimated 60–70% and pushed retail prices up 70–100% within three days, with green chilli alone rising from Tk250 to Tk590 per kilogram (The Daily Star, 2024). No published source, however, has yet connected production data, road-damage data, and price data into a single account of the July 2026 event as it played out for vegetables specifically. That is the gap this paper tries to close, using the best evidence currently on the public record.

3. Methodology

3.1 Research Design

This study uses a secondary-data case-study design to examine the disruption of the vegetable supply chain following the July 2026 flash floods and heavy rainfall in the Chattogram Hill Tracts (CHT)–Chattogram region. The analysis focuses on three interconnected stages of the vegetable supply chain: (1) agricultural production, (2) transportation, and (3) market prices. Only documented, verifiable observations are used; no synthetic or estimated observations are introduced.

3.2 Study Area and Event Period

The study covers the Chattogram Hill Tracts and Chattogram District, with particular attention to agricultural production areas in the hill districts and their transportation links to Chattogram markets. The July 2026 heavy-rainfall and flash-flood event is divided into three periods: (1) a pre-flood period, covering conditions before the major disruption; (2) a flood-disruption period, covering the heavy rainfall, flash flooding, agricultural damage, transportation disruption, and associated market response; and (3) a post-disruption period, used for contextual comparison. Historical flood events are not part of the July 2026 dataset; they appear only as supporting evidence for comparison where relevant.

3.3 Data Sources and Variables

The study draws on four categories of secondary data, summarised in Table 1: agricultural damage data from the Department of Agricultural Extension (DAE) and government reports; transportation and infrastructure data from the Local Government Engineering Department (LGED) and Roads and Highways Department (RHD); vegetable market-price data from the Department of Agricultural Marketing (DAM) and dated Chattogram market reports; and humanitarian situation data from UN Bangladesh, the ACT Alliance, and related sources.

Table 1. Secondary Data Sources and Variables

Data category	Source	Main variables	Purpose
Agricultural damage	DAE and government reports	Affected area, vegetable cultivation damage, production loss, affected locations	Measure production disruption
Transportation and infrastructure	LGED, RHD, and government reports	Damaged roads, damaged highways, damaged bridges and culverts, route accessibility	Measure transportation disruption
Vegetable market prices	DAM and dated Chattogram market reports	Vegetable, date, market, reported price, unit	Measure market-price response
Flood and humanitarian impact	UN Bangladesh, ACT Alliance, related situation reports	Affected population, flood extent, accessibility, infrastructure and market disruption	Cross-check timing and extent of the event

Agricultural damage data identify the production-side effect of the flood. Government-reported assessments documented 15,911 hectares of damaged cropland in Chattogram, with additional district-level information on vegetable damage. Transportation data identify constraints on moving vegetables from production areas to markets: the available evidence reports 391 kilometres of damaged rural roads and 126 kilometres of damaged highways, together with 180 damaged bridges and culverts in Chattogram. Market-price data serve as the main downstream indicator of supply-chain disruption, drawn from dated Chattogram market reports that record actual vegetable prices before and during the documented price-hike period. Humanitarian situation reports corroborate the timing, geographical extent, accessibility conditions, and infrastructure impacts of the flood; the UN Bangladesh situation report dated 13 July 2026 reported 1.11 million affected people across ten districts.

3.4 Data Collection Procedure

Data were collected from original publications and organised by date, location, variable, numerical value, unit, and source. Government and humanitarian reports were first reviewed to establish the timing and geographical extent of the flood. Agricultural damage observations were then extracted for affected production areas, followed by transportation and infrastructure disruptions recorded according to their reported locations and dates. Finally, dated vegetable-price observations were collected for periods before and during the documented price-hike period, and the resulting datasets were organised chronologically to compare agricultural damage, transportation disruption, and market-price changes.

3.5 Data Verification

Each numerical observation was checked against its original publication before inclusion in the dataset, against three criteria: (1) temporal verification — the observation must correspond to the July 2026 flood event or a clearly defined pre-event comparison period; (2) geographical verification — the observation must relate to Chattogram, the CHT, or a documented supply route connected to the study area; and (3) numerical verification — the reported value and unit must correspond directly to the original source. Government sources were prioritised for agricultural and infrastructure statistics, while DAM and dated market reports were used for price observations.

3.6 Measurement of Vegetable Price Hikes

For each vegetable with verified pre-flood and flood-period prices, the absolute and percentage price increases were calculated as follows:

$$\Delta P_i = P_{i,f} - P_{i,0}$$

$$PI_i = [(P_{i,f} - P_{i,0}) / P_{i,0}] \times 100$$

where ΔP_i is the absolute price increase of vegetable i (Tk/kg), PI_i is the percentage price increase (%), $P_{i,0}$ is the verified pre-flood price, and $P_{i,f}$ is the verified flood-period price. For reported price ranges, the lower (L) and upper (U) bounds were calculated separately using the same formulas applied to $P_{i,f,L}$ and $P_{i,f,U}$. No midpoint was substituted for a reported price range; for example, for bottle gourd, where $P_0 = 60$ Tk/kg and $P_e = 80\text{--}90$ Tk/kg, $\Delta P = 20\text{--}30$ Tk/kg and $PI = 33.3\%\text{--}50.0\%$.

3.7 Verified Vegetable Price Dataset

The price-hike analysis is based on actual Chattogram market observations reported during July 2026, summarised in Table 2.

Table 2. Verified Chattogram Vegetable Price Observations

Vegetable	Pre-flood price (Tk/kg)	Flood-period price (Tk/kg)	Absolute / % increase
Bottle gourd	60	80–90	Tk20–30 (33.3%–50.0%)
Pointed gourd (potol)	35–40	80–100	Tk40–65 (100.0%–185.7%)
Green chilli	100–120	200–240	Tk80–140 (66.7%–140.0%)

The calculated absolute and percentage changes are derived directly from the reported prices using the equations in Section 3.6.

3.8 Supply-Chain Disruption Indicators

To examine how the flood shock moved through the vegetable supply chain, the study combines agricultural and transportation indicators with market-price observations, summarised in Table 3.

Table 3. Supply-Chain Disruption Indicators

Indicator	Reported value	Unit	Supply-chain stage
Damaged cropland in Chattogram	15,911	hectares	Production
Damaged rural roads	391	km	Transportation
Damaged highways	126	km	Transportation
Damaged bridges and culverts	180	number	Transportation

These indicators point to disruption at different stages of the supply chain. The 391 kilometres of damaged rural roads and 126 kilometres of damaged highways indicate substantial transportation constraints, alongside the production-side shock captured by the agricultural damage figures.

3.9 Supply-Chain Disruption Mapping

The vegetable supply chain is analysed across three stages. At the production stage, the study identifies areas where vegetables were affected by flooding and heavy rainfall. At the transportation stage, road, highway, bridge, and route disruptions are identified as potential constraints on moving vegetables from production areas to market centres. At the market stage, actual reported vegetable prices are compared between the pre-flood and flood-related price-hike periods. The resulting analytical pathway — flood exposure leading to crop damage and transportation disruption, which together reduce market inflow and drive a vegetable price hike — is illustrated in Figure 4 (Section 4).

3.10 Production and Transportation Effects

The study considers two possible pathways through which the flood affected vegetable prices. The production pathway runs from flood, to crop damage, to reduced available vegetable supply, to a price increase. The transportation pathway runs from flood, to road and bridge damage, to restricted transportation, to reduced market inflow, to a price increase. Because the July 2026 event caused both agricultural and infrastructure damage at once, the two pathways are considered simultaneously rather than as independent events.

3.11 Data Triangulation

Data triangulation was applied by comparing evidence from independent sources: DAE and government assessments for agricultural damage; LGED and RHD data for road and infrastructure disruption; UN Bangladesh and ACT Alliance reports for flood extent, accessibility, and market disruption; and DAM and dated Chattogram market reports for actual vegetable prices. Together, these sources build an evidence chain running from the flood event, through production and transportation disruption, to the observed market-price changes.

3.12 Data Analysis

The collected data were analysed using descriptive, temporal, and comparative methods: descriptive analysis to summarise agricultural damage, infrastructure disruption, and reported vegetable prices; temporal analysis to establish the sequence between flood occurrence, agricultural and transportation disruption, and market-price increases; and comparative analysis to calculate absolute and percentage price changes for vegetables with verified before-and-after observations. Because the study relies on observational secondary data, the results are interpreted as evidence of a documented temporal and supply-chain relationship, rather than as proof that flooding was the sole cause of every observed price change.

3.13 Methodological Limitations

The main limitation is the absence of a continuous daily Chattogram vegetable-price series covering the entire peak disruption period; the available sources provide dated market observations and before-and-after comparisons rather than a complete daily series for every vegetable. A further limitation is that reported prices may represent individual markets rather than a district-wide average. Vegetable prices can also be influenced by factors other than flooding — supply from unaffected regions, transportation costs, seasonal availability, imports, demand, and trader behaviour. For this reason, the analysis does not estimate missing prices or assign the entire observed price increase exclusively to the flood; instead, it evaluates the documented relationship between flood-related production and transportation disruption and the observed vegetable price response.

4. Results

The production picture, shown in Figure 1, is uneven across the five affected districts. Rangamati and Cox's Bazar each lost roughly 950–1,150 hectares of summer vegetables, while Khagrachhari's reported loss was comparatively small at 143 hectares (Dhaka Tribune, 2026a, 2026c).

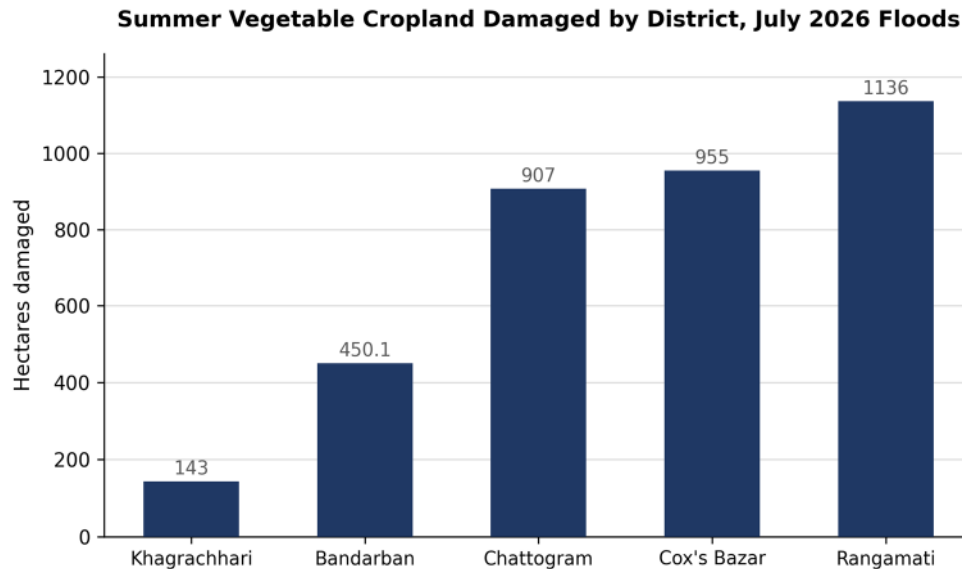


Figure 1. Summer vegetable cropland damaged by district, July 2026 floods. Data: Dhaka Tribune (2026a, 2026c).

The transport picture is more severe. Within Chattogram district alone, the Local Government Engineering Department recorded 391 kilometres of damaged rural roads, and the Roads and Highways Department a further 126 kilometres of damaged highway — a combined 517 kilometres — alongside 180 damaged bridges and culverts and an estimated repair bill of Tk180 crore (The Daily Star, 2026a). In the hill districts, the Bandarban–Roangchhari road went under water, Bandarban town's link to Thanchi, Ruma, and Rowangchhari was severed, and the Khagrachhari–Dighinala–Sajek road flooded badly enough to strand roughly 450 tourists (Prothom Alo, 2026; The Daily Star, 2026b).

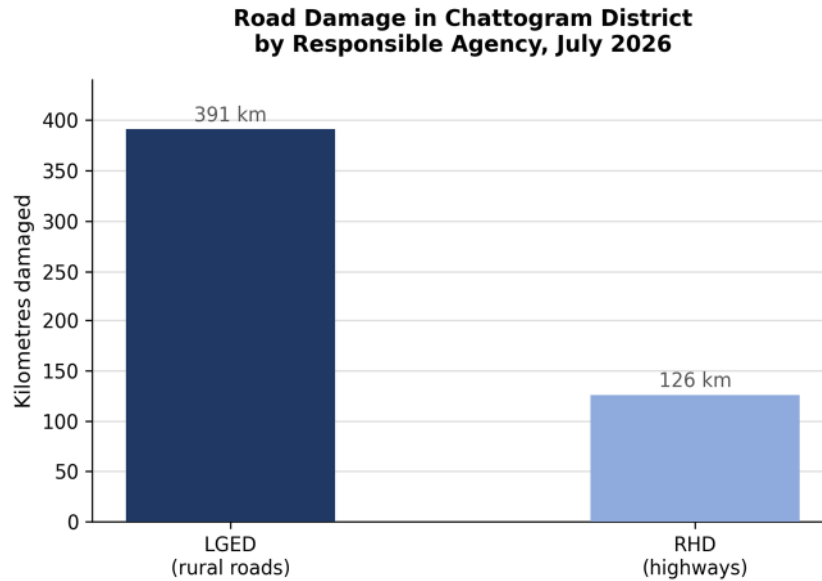


Figure 2. Road damage in Chattogram district by responsible agency, July 2026. Data: The Daily Star (2026a).

Whether it was the fields or the roads that mattered most for what shoppers actually experienced, the clearest signal comes from the ACT Alliance (2026), which reported — while road and river-crossing damage was still being assessed in Bandarban and Rangamati — that flooding had caused market closures and reduced the feasibility of cash assistance nearby: a strong contemporaneous sign that the transport side, not the field side, was the more immediate constraint. Prices in Dhaka's kitchen markets bear this out. Within two weeks, vegetables rose Tk20–40 per kilogram, fish Tk20–100, and broiler chicken Tk10–20 (Dhaka Tribune, 2026b; Dhaka Stream, 2026), a pattern shown for Chattogram specifically in Figure 3.

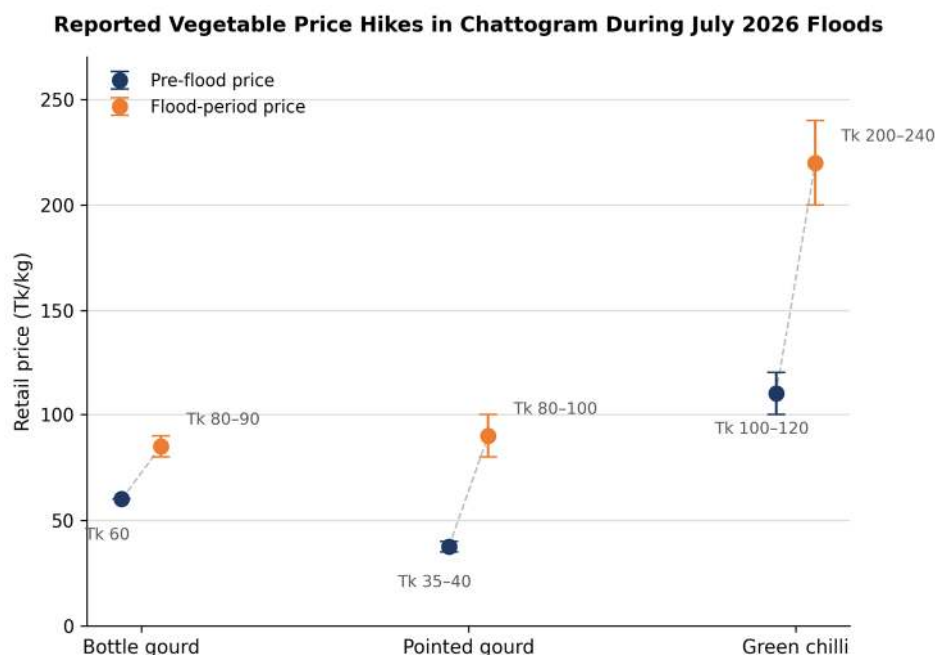


*Figure 3. Reported retail price ranges in Chattogram markets before and during the July 2026 floods, by item.
Data: Section 3.7 (Table 2), compiled from dated Chattogram market reports.*

Chattogram's own markets tell a similar story. A survey of five city kitchen markets on 7 August — roughly a month after the flood peaked — found that green chilli had earlier touched Tk400 per kilogram before easing, only once imports from India resumed, with brinjal, bitter gourd, and several fish and poultry items still described as elevated (Uddin, 2026). Taken together, the timing fits neatly onto a short chain, illustrated in Figure 4: the flood damages both field and road in the same one-to-two-week window; the road damage bites first, since it affects everything still moving rather than only what was destroyed outright; and prices in both Dhaka and Chattogram move within days to weeks, easing only once alternative supply routes — in this case, imports — open up.

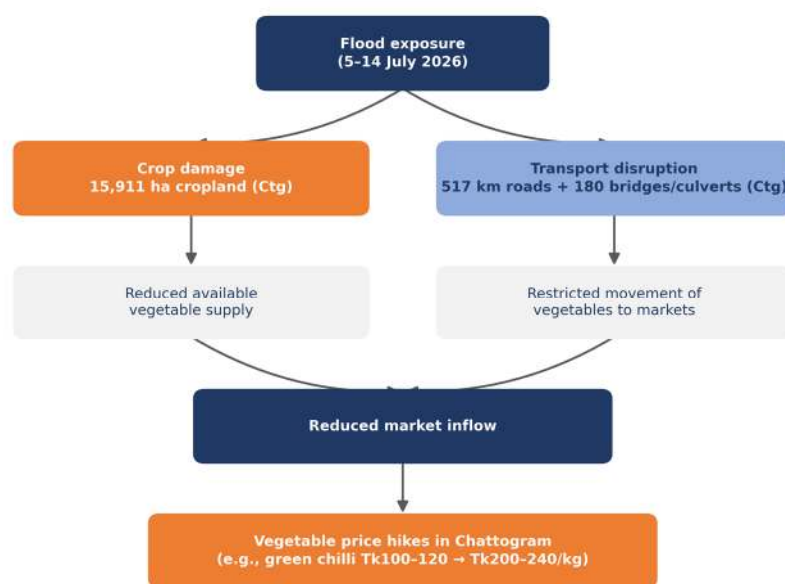


Figure 4. Supply-chain disruption pathway from flood exposure to vegetable price hikes in Chattogram, July 2026.

5. Discussion and Recommendations

This reading sits comfortably alongside the wider literature. Islam et al. (2025) found much the same thing for poultry feed — that transport and import bottlenecks, not farm-level shortfalls, drove most of the pain — and Asha et al. (2022) make the broader point that Bangladeshi consumer prices tend to move with disruption in the supply chain's middle layers rather than with production cost alone. Haque et al.'s (2023) finding that flood damage to rural roads follows predictably from flood depth and road structure is a useful corrective to any instinct to treat 517 kilometres of damaged road as a footnote to the real story of crop losses. And Chattogram's own history — a comparable, transport-driven price spike from an entirely different flood in August 2024, and a separate flood that took out 65% of the district's rural roads in August 2023 — suggests this is a structural weakness that resurfaces almost every monsoon, not a one-off shock.

Three practical steps follow. First, the specific roads that keep reappearing in these damage reports — the corridors linking Bandarban, Rangamati, and Khagrachhari to Chattogram city, and the worst-hit upazilas of Satkania, Banshkhali, Chandanaish, Anwara, and Lohagara — deserve flood-resilient reconstruction rather than the same repair-and-wait cycle each year. Second, DAE's crop bulletins and

LGED/RHD's road bulletins should be read — and ideally published — together, since a joint rapid-assessment format that logs transport status and market prices alongside crop hectares would let responders see the whole chain rather than only its first link. Third, because the 2024 precedent shows prices can spike within three days of a transport cut, a fast-response protocol of temporary alternate routes, short-term price monitoring, and emergency support connecting isolated wholesalers to alternative supply would blunt the sharpest and earliest part of the price spike before it reaches the dinner table.

6. Conclusion

The July 2026 floods damaged Chattogram's vegetable supply chain at two points nearly at once: the fields that grow the crop, and the roads that carry it to market. The evidence assembled here points to the second as the more immediate driver of what shoppers actually felt, in the form of price spikes that reached Dhaka within two weeks and were still unsettling Chattogram's own kitchen markets a month later. Building resilience in this corner of the food system means treating roads as seriously as fields — and, given how often this particular combination of damage has recurred, planning for it as a recurring feature of the monsoon rather than an unlucky exception.

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