Climate pressure and the fiscal sustainability of Dutch municipalities

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The social and economic consequences of climate change are becoming increasingly visible, increasing the urgency of investments in mitigation and adaptation. The total social costs that arise when these measures are not taken are defined as the costs of climate inaction (Ackerman & Stanton, 2006; EEA, 2007). Although these costs are often discussed in terms of direct physical damage, they have a profound impact on public finances. Indirect economic damage and financial damage are essential components of the costs of climate inaction, but little is known about these damage items for The Netherlands (Roelands et al., 2025). In The Netherlands, the fiscal sustainability balance is currently used primarily in demographic aging studies (Adema & Van Tilburg, 2019). However, the focus is shifting. The Netherlands Bureau for Economic Policy Analysis (CPB) recently concluded that the majority of the costs of climate change and climate policy will be borne by future generations (Van Toor & Nibbeilnk, 2023). In line with this, the Council of State recommends to include climate costs in the fiscal sustainability analysis (Raad van State, 2023).

However, there appears to be a discrepancy between the scale at which climate damage occurs and the level at which the financial effects are assessed. Physical and economic damage are local phenomena, while the fiscal sustainability analysis is limited to the national level (Preinfalk et al., 2026). Since the costs of climate adaptation are largely borne by local authorities, the impact of climate inaction will primarily translate into a regional budget crisis. Municipalities are at risk of being caught in a climate trap: exploding costs for damage repair or climate adaptation versus an eroding local tax base. An analysis of climate effects at the macro level often leads to an underestimation of the actual impact. This is because aggregated figures smooth out extreme local risks into a misleading average (Bosello & Leon, 2022). A climate-inclusive fiscal sustainability analysis at the national level therefore masks regional diversity and overlooks the specific vulnerabilities that can lead to budgetary instability at the local level (Cortés Arbués et al., 2024). Although the decentralized task in the Netherlands lies with municipalities, provinces, and water boards, this study focuses specifically on municipalities. They operate at the smallest scale and bear the broadest responsibility for all climate risks, from heat to foundation repair, while for water boards the focus remains limited to water management.

In a recent report, the costs of climate inaction in the Netherlands were estimated at €77 to €174 billion by 2050 (Baarsma et al., 2025). However, this estimate does not yet provide a complete picture of the costs of climate inaction in the Netherlands. This estimate is based on the Climate Damage Estimator (Klimaatschadeschatter, 2021), which translates the physical damage from the Climate Impact Atlas (Klimaateffectatlas, 2025) into euros of damage per municipality. This therefore only includes direct economic damages. In addition to physical and direct economic damage, indirect economic and financial effects are also important (Roelands et al., 2025).

The financial resilience of municipalities shows the extent to which they are able to absorb the costs of climate action. The financial stability of Dutch municipalities relies heavily on property tax, which is directly linked to property values. In 2026, property tax accounts for 10% of the total municipal budget on average (Rijksoverheid, n.d.). Climate risks, such as foundation damage due to drought, are beginning to structurally affect these property values (Hommes et al., 2023; Bani et al., 2024).

Figure 1a shows the total damage from the Climate Damage Estimator for the year 2050 per municipality as a percentage of the local economy. The municipal gross domestic product (GDP) for 2050 is calculated by dividing the GDP of 2024 (regionalized based on household income) by the population of 2024 (CBS, 2025a, 2026). This measure of labor productivity is then extrapolated to 2050 using the average labor productivity growth rate of the WLO high and low scenarios (PBL, 2025). Finally, this figure was multiplied by the population forecast for 2050 (CBS, 2025b).

Figure 1b illustrates the climate damages in 2050 in relation to municipal budgets. The total municipal budgets are calculated as the sum of the municipal fund allowance and all levies, including property tax (Rijksoverheid, n.d.). For the municipal fund and all levies except property tax, it is assumed that growth is determined by population growth as predicted by Statistics Netherlands (CBS, 2025b). For property tax, the growth rate of the past 10 years is used, adjusted for population growth. Finally, the total municipal budgets for 2050 are adjusted for damage to buildings caused by climate change. To this end, the damage from the Climate Damage Estimator related to buildings (foundation damage due to drought and water damage to buildings) for 2050 is multiplied by the most recent property tax rate. This amount is deducted from the total municipal budget.

Figure 1 brings together both sides of the climate trap: the lower municipal incomes due to reduced property tax revenues are included in the budgets; the total damages provide an indication of the additional costs that municipalities will incur as a result of climate change. The two maps paint a different picture. Figure 1a shows the direct economic damage to the entire community within the municipality, and thus indicates the extent to which local prosperity is affected for the average resident. Figure 1b looks only at the budgetary impact within the municipality, and thus shows the extent to which the local government can absorb the climate damage.

The map shows that some municipalities are better able to absorb climate damages than others. In some regions the climate damages add up to more than 50% of the budget. These high percentages are alarming. They point to a lack of financial resilience, putting municipalities at risk of serious financial problems. Heterogeneity between municipalities may also increase as a result of these costs of climate inaction. From a systemic perspective, this the beginning of a self-reinforcing cascade. When municipal property values fall, not only does the tax capacity of municipalities decline, but indirect spending and the regional attractiveness for workers, and possibly also businesses, also decline. The municipality can end up in a negative spiral in which the costs of repairing public infrastructure rise at the same time as revenues from private real estate evaporate.

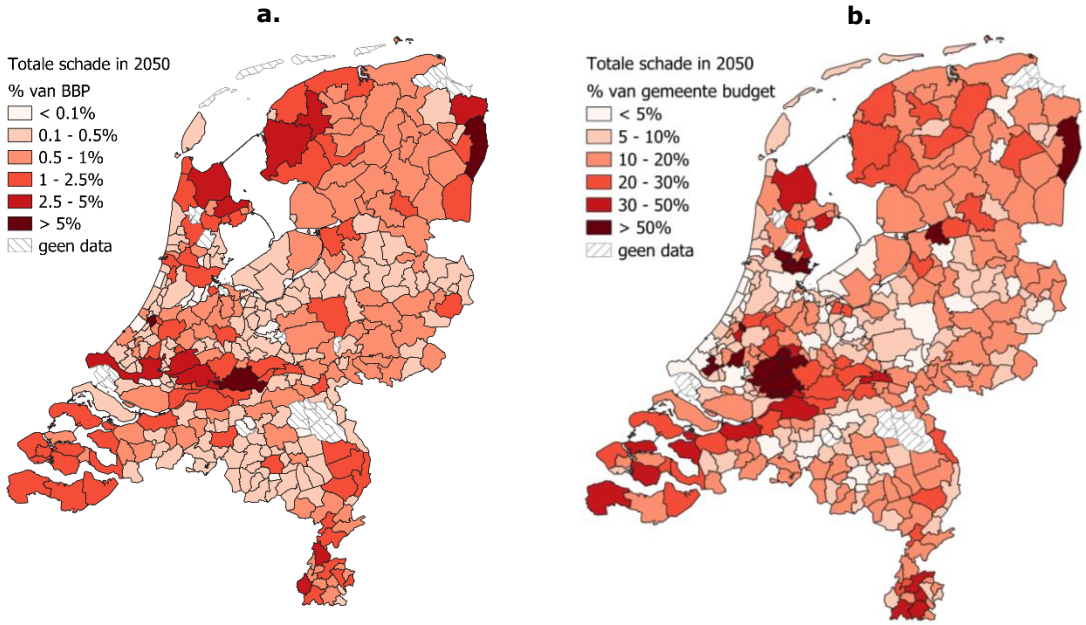

Figure 1: Total damage caused by severe climate change in 2050. Source: own estimates based on Klimaatschadeschatter (2020), CBS (2025a, 2026) & PBL (2025)

To combat climate change, municipalities must invest in local adaptation. These investments prevent future damages and maintain quality of life. However, the current financing structure is inadequate.

Climate change is shortening the lifespan of infrastructure, leading to higher depreciation costs. Because the benefits of these investments are diffuse and the costs are acute, there is a risk of underinvestment. This creates a systemic risk: municipalities that lack resources to invest in adaptation may see their tax base erode more rapidly, further constraining their fiscal capacity.

To estimate the scale of the necessary investments, we use a study on the costs of climate adaptation in South Holland by Nelen & Schuurmans (2023). This study compiles a table of construction and management costs of climate adaptation measures per square meter for different neighborhood typologies. Data for neighborhood types throughout the Netherlands is available in the Climate Impact Atlas (Klimaateffectatlas, 2025). To calculate the adaptation costs per municipality for the whole of the Netherlands, we added up the surface area of each neighborhood type per municipality and multiplied it by the average costs per neighborhood type. We then added up the construction and management costs for each year until 2050 and divided them equally over the years to determine the costs for the year 2050. It should be noted that the calculation by Nelen & Schuurmans is for urban adaptation. Thus, no adaptation costs for agricultural land or nature are included. These costs therefore underestimate the total costs, but they provide a good initial estimate. Based on this calculation, the adaptation costs for all Dutch municipalities in 2050 will be around €4.2 billion. The climate damages for all Dutch municipalities in 2050 are calculated to be more than €8.5 billion, which is more than half of the adaptation costs.

Figure 2a shows the adaptation costs per municipality in 2050 in million euros, while Figure 1b shows the same costs as a percentage of the municipal budget. There are clear differences between the two maps. While the absolute costs are high for several municipalities in the central and western regions of The Netherlands, it is mainly the municipal budgets in the northeast and south that are vulnerable in relation to the costs. Compared to Figure 1b, it is striking that for a large part of The Netherlands, the adaptation costs place less of a burden on the municipal budget than the damage that would occur if no investments were made. However, there are also municipalities that need more budgetary space to absorb the adaptation costs and thus prevent high climate damage.

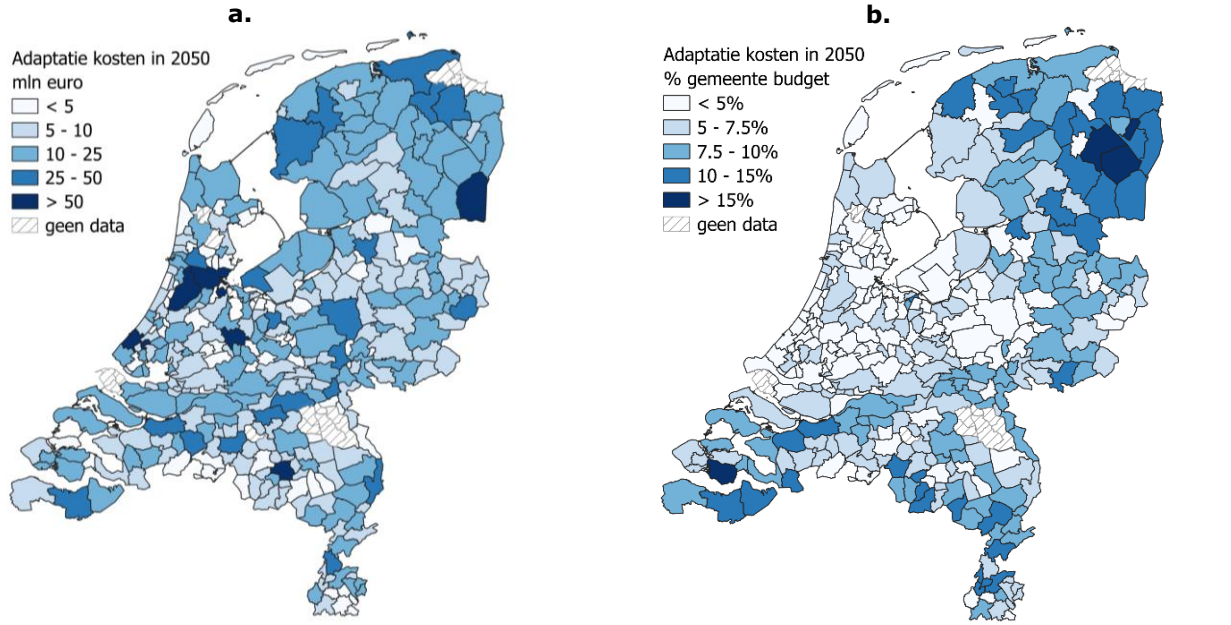

Figure 2: Climate adaptation costs for The Netherlands in the year 2050. Source: own estimates based on Nelen & Schuurmans (2023) & Klimaateffectatlas (2025).

The fiscal sustainability of Dutch municipalities is under double pressure: not only from the physical consequences of a changing climate, but also from a looming systemic crisis in the national public

finances. A new, austerity-driven financing system from the national government is creating a structural budget gap (VNG, 2025). Although the cabinet has now pledged additional funds to eliminate the most immediate risks, a structural deficit of around two billion euros is expected to remain until 2029 (BDO, 2026). This budgetary crisis is acting as a catalyst for the climate trap, whereby rising costs for damage repair and adaptation coincide with an eroding local tax base due to property damage.

This threatens to create a vicious circle in which the lack of timely prevention not only puts pressure on local facilities, but also undermines the future physical safety and economic resilience of regions. This study demonstrates that municipal finances are highly vulnerable to direct economic climate damages, with the figures presented here representing a lower bound as indirect economic effects and adaptation costs to nature and agricultural land have not been included.

To prevent municipalities from becoming financially stranded, a fundamental reassessment of national policy is necessary. First, the distribution model of the Municipal Fund, which is currently based primarily on population numbers, must be structurally adjusted to a model that takes into account actual local climate risks. Secondly, the introduction of a 'climate damage ladder', as advocated by the WKR (2025), is essential to clearly define the distribution of responsibilities between citizens, businesses, and different levels of government. This provides the necessary clarity to replace ad hoc compensation with a system that gives municipalities room for future-oriented, climate-proof investments. The urgency of this is supported by various international studies that show that climate change slows GDP growth (Kahn et al., 2021; Mohaddes & Raissi, 2025), affects the creditworthiness of governments (Klusak et al., 2023), and is already putting pressure on local budgets (Jerch et al., 2023). Without a national reassessment of funding, the Netherlands risks growing economic inequality between municipalities, with local authorities being forced to pass on the rising climate costs directly to their residents.

Although this study provides an initial detailed assessment for the whole of the Netherlands, further research is needed to obtain a complete picture of the costs of climate inaction. Future studies should focus on quantifying indirect damages, the impact of climate risks on the location of businesses and the associated tax flows, as well as the costs for agriculture, nature, and healthcare. In addition, insight is needed into the limits of public and private adaptation and the broader effects on the financial system (Mandel et al., 2025). A system-wide analysis of these economic feedbacks is indispensable for designing equitable climate policies that ensure long-term local financial sustainability (Van Ginkel et al., 2025).

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