

Vulnerability Background Note

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1 Vulnerability context

Armenians face exposure to a variety of natural hazards and climate shocks, including air pollution, floods, earthquakes, forest loss, air quality, variation in precipitation, and variation in temperature. A vulnerability index analysis conducted alongside this study (World Bank, 2023b) reveals that the northern areas of the country are most exposed to these hazards. People’s ability to handle the impacts of these hazards and shocks depends on their economic resources and institutions. That means that exposure alone is not a problem and it is the combination of exposure with economic concentration and living standards what creates sticking points in the face of these hazards and also offers mitigating factors when economic conditions and living standards are better. When considering this interaction, the most vulnerable locations are Ghukasyan (Ararat), Gugark, Kalinino, Spitak (Lori), Aragats (Aragatsotn), Amasya, and Ani (Shirak) and the least vulnerable are all located in or near major cities, including Yerevan (Capital), Gyumri (Shirak), (Kotayk), Dildijan (Tavush), and Vagharshapat (Armavir).

Armenians are convinced that climate change is real and, according to the Life in Transition (LITS) and Deep Dive Surveys (DDS) (World Bank, 2023a), and 84 percent of Armenian respondents in those surveys believed that climate change will seriously affect them during their lifetime (World Bank, 2023). Moreover, 92 percent of them believed that climate change would affect today’s children during their lifetime, making Armenia the seventh most aware country out of the 37 surveyed from both, Europe and Central Asia. The concerns are such, that 51 percent of respondents believe that protecting the environment is more

important than economic growth. Half of respondents see regulations and public investments as important to address climate change, but remain concerned, as only 8 percent of individuals believe hypothetical extra taxes would be spent on climate change by the government.

Almost a quarter of Armenian households (187,176 out of 800,604 households or 23.4 percent) derive income from the sales of agricultural products. However, exposure to the climate risks of agriculture is larger, since 41 percent of households use land for agricultural purposes (owned and/or rented), regardless of agricultural sales, and for almost a fifth of the households (135,360 households), 26.4 percent of their total income also comes from hired employment in the agricultural sector, 20.2 percent from the sale of agricultural products, and 9.5 percent from imputed use of agricultural products for own consumption. For this group, the total exposure to the agricultural sector represents 56 percent of their total income under climate risks faced there.

Flood risks threaten regional growth in a differentiated manner. An analysis conducted for this report estimates combined agricultural, buildings and roads losses ranging between 0.1 and 15.4 percent of regional GDP that would result from a 1 in a 100-year flood event in Armenia's regions for a country total of between USD 167.1 and USD 462 million (Lenoble & Rozenberg, 2024). The worst hit regions would be Vayots Dzor (up to 15.4 percent), Lori (up to 12.0 percent), Tavush (up to 11.1 percent), and Aragatsotn (up to 9.4 percent), while the Yerevan metropolitan region would be the most resilient (up to 1.2 percent). These disparities in vulnerability suggest that different policies and investment public and private strategies are needed at the regional level for flood proofing production zones, infrastructure, and dwellings.

2 Flood Impacts on Buildings

Homes are perhaps the most important asset owned by households. In 2022, most of the 800,604 Armenian households owned their dwelling (about 89.4 percent), as shown in Figure 1, with only about 5.9 percent of homes renting and 4.7 percent with other forms of tenure. Also, about 97 percent of households lived in houses or apartments, as opposed to less formal structures. Houses averaged 112.0 m², while apartments averaged 68.3 m². As expected, 96.2 percent of apartments were located in urban areas, with about half of them in Yerevan (55.3 percent). Houses, on the other hand, were located mostly in rural areas (65.8 percent), with about 13.4 percent of them located in Yerevan (ARMSTAT, 2023).

Owned dwellings are an asset from which households derive welfare. By not having to spend on housing, more is available as disposable income. The emergent rental market information of Armenia was used to impute rent to non-renters using a log linear modeling approach described by Ceriani, Olivieri, & Ranzani (2019) and it was established that owners derived an average of AMD 53,145.27 (USD 122.8) in monthly imputed rent, with an average dwelling of 89m² (regional details shown in Table 1).

Table 1: Armenia: average dwelling area and imputed rent (Year 2022)

Marz	Average imputed monthly rent (AMD)		Average imputed monthly rent (USD)
Aragatsotn	103.8	37,769.4	87.2
Ararat	102.6	40,390.4	93.3
Armavir	109.3	40,237.3	92.9
Gegharkunik	115.4	29,480.5	68.1
Kotayk	96.2	43,472.8	100.4
Lori	87.9	22,414.2	51.8
Shirak	82.7	28,517.6	65.9
Syunik	95.1	38,606.5	89.2
Tavush	97.5	23,128.6	53.4
Vayots Dzor	104.7	28,811.5	66.6
Yerevan	70.9	93,590.9	216.2

Own elaboration based on Armenia Integrated Living Conditions Survey (ARMSTAT, 2023).

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