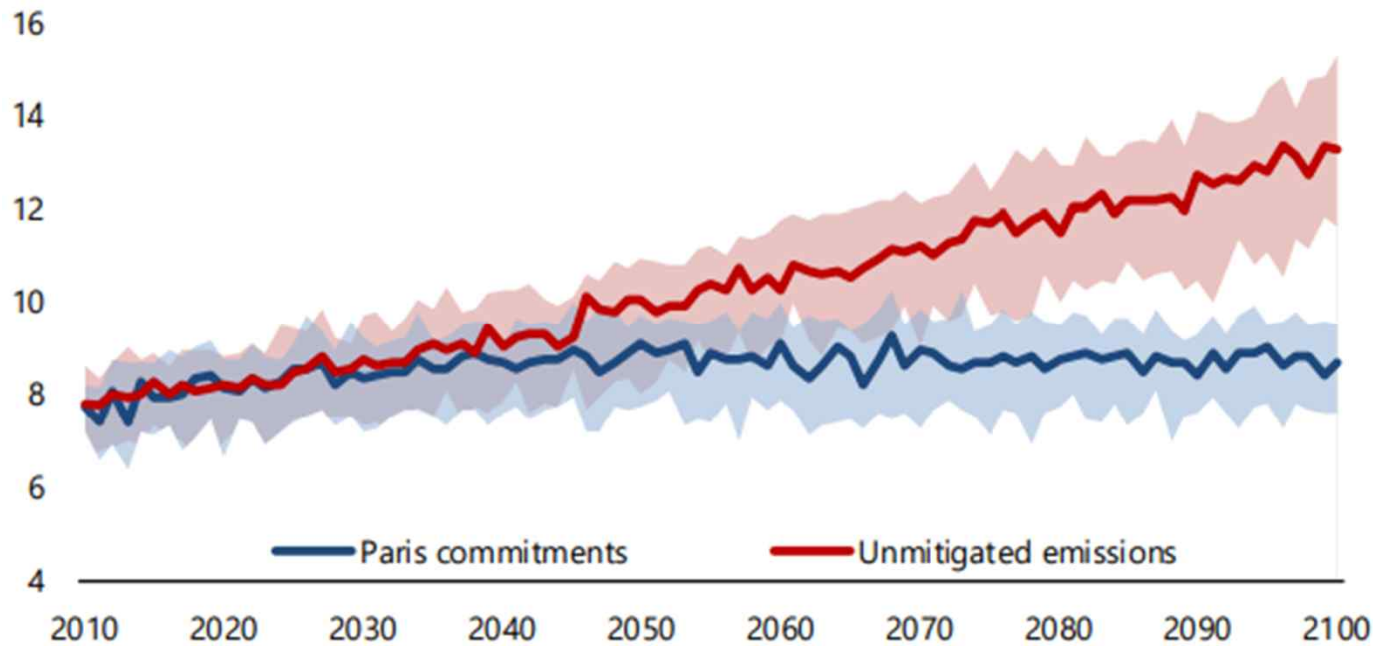




MINISTRY OF FINANCE OF THE
REPUBLIC OF ARMENIA

Public-Private Partnerships and Risks arising from Climate Change

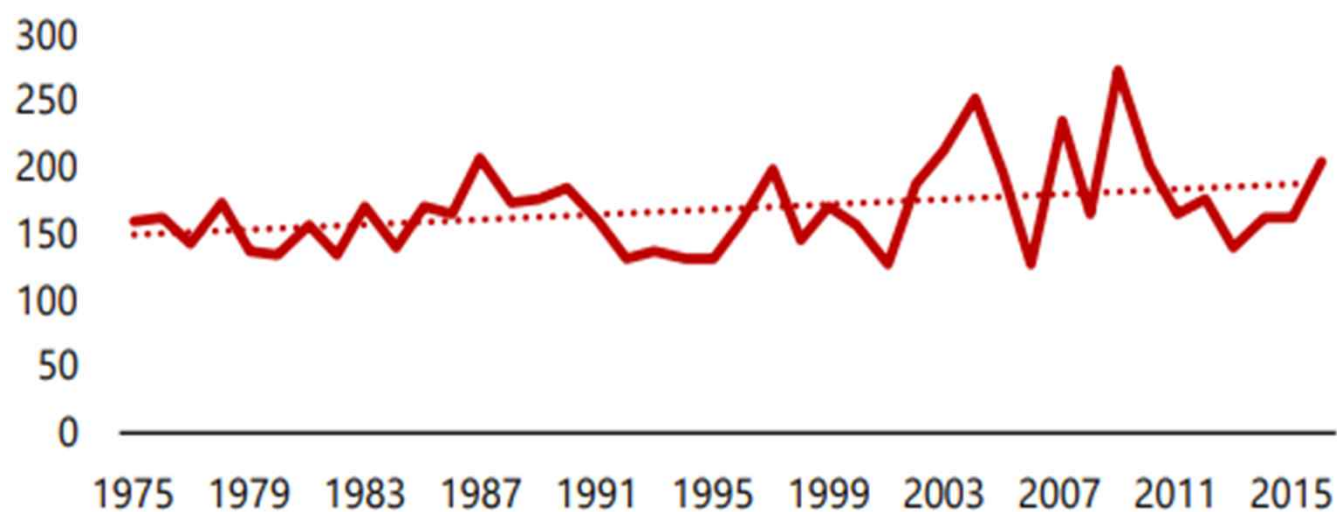
Annual Average Temperature Projections for Armenia



- Since 1990s the average temperature has increased by 1.2 degrees.
- Under business-as-usual scenario average annual temperature is projected to increase by 5.6 degrees above baseline scenario by 2100.

Source: World Bank Group, Climate Change Knowledge Portal.

Frequency of Climate-Related Natural Disasters

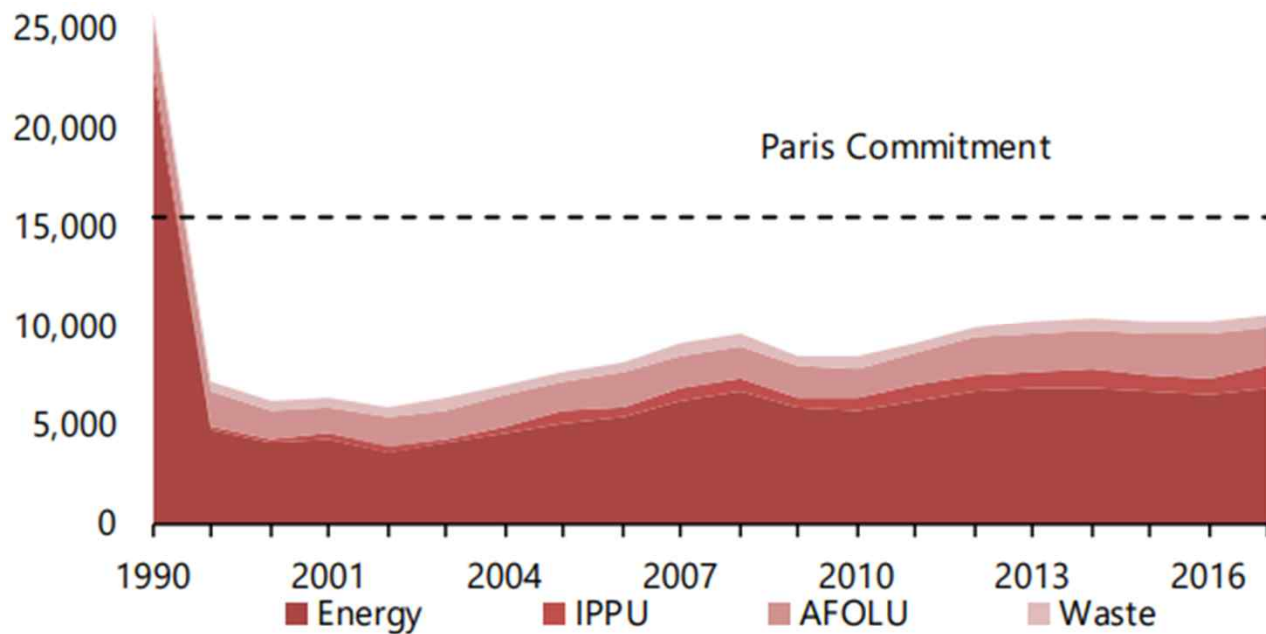


- The frequent hazardous phenomena during of 1975-2016 were frost, hailstorms, strong winds and extremely heavy rainfalls
- The most serious effects of climate change in Armenia are expected to be an increase in drought

Source: Armenia's Fourth National Communication on Climate Change

(2021)

Target and GHG levels

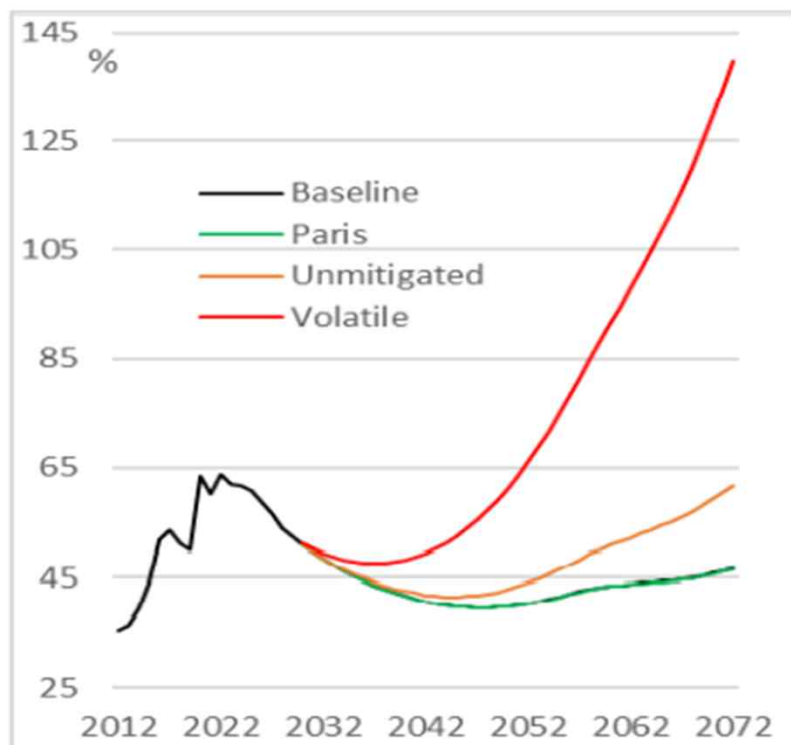


- Armenia's global emissions comprise 0.02 percent share of total emission.
- The energy sector produced majority volume of high emissions.

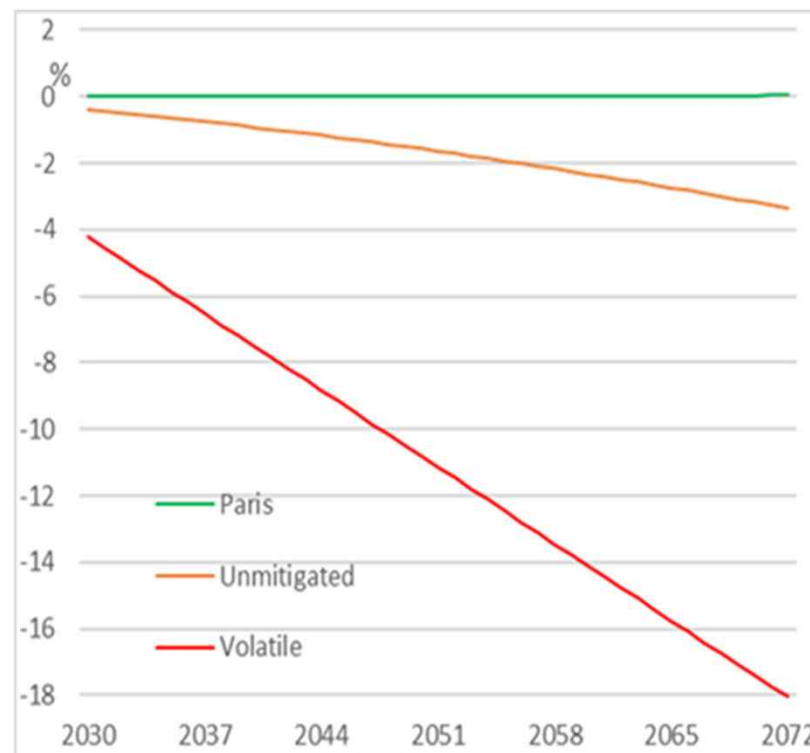
Source: National Greenhouse Gas Inventory Report of Armenia 1990-2017

Effects of Climate Change on Fiscal Projections (2012–72)

Debt-to-GDP Ratio



Impact on real GDP level



Source: IMF

Public-Private Partnership

- There are currently three Public-Private Partnerships and three Power Purchase Agreements in Armenia.
- In 2019, the "Public-Private Partnership Law" was adopted, which outlines the framework for PPP relationships, implementation criteria, procedural steps, the institutional governance structure, and applicable principles.
- In 2023, Armenia introduced a new public investment management decree. This policy incorporates climate-related criteria into the assessment process for new public investment projects.
- A PPP project must comply with the priorities prescribed by the public investment management policy.

Evaluation Indicators of Public Investment Projects

- The public investment projects are conducted using a point-based system.
- Currently, the methodology applies to projects worth 1 billion AMD (2.5 mln USD) or more. For projects under 1 billion AMD, the process set by the Budgetary System Law of the Republic of Armenia is used.
- The extent to which the project impacts human capital, taking into account its effects on areas like health, education, security, and social well-being.
- The public significance of the infrastructure the project addresses, with a focus on whether it's essential for providing public goods or services and whether it aligns with legal requirements.
- Compliance with the strategy is assessed based on the extent to which projects align with and contribute to the goals and objectives defined in the strategy.
- Project risk level, including climate and disaster risks. If the project contributes to the decrease of greenhouse gas emissions, it receives the highest score.
- Economic Internal Rate of Return (EIRR).

Current PPPs

- “Armenia International Airports” CJSC - The Concession Agreement acts since 2002 for Yerevan “Zvartnots” airport. The parent company is one of the largest airport operators in the world – “Corporacion America S.A.”
- “Contour Global Hydro Cascade” CJSC - The Company is a key hydroelectric power generation complex, which was previously an SOE, privatized and sold to the large international power generation group ContourGlobal. The Company sells the generated power to the Electric Networks of Armenia (ENA), at tariffs approved by the Public Services Regulatory Commission
- “Armpower” CJSC - The company has built and commissioned a thermal power plant in Yerevan and is a subsidiary of Italian energy group Renco and of German group Siemens, both with large power generation activities across the world. The estimated project cost has been USD 257.575 million
- “Masrik-1” solar photovoltaic plant - In frames of this project, the solar power plant is being built with a nominal capacity of 55 MWt. It is owned by specialized Spanish groups La Providencia and FRV and is funded by loans from IFC, EBRD and the Finnish and Armenian governments. The total project cost is USD 50.2 million.
- In 2016, an agreement has been concluded between the RA Government, French "Véolia Eau Compagnie Générale des Eaux" share company and “Veolia Jur” CJSC for a term of 15 years.
- In 2008 the Republic of Armenia, the “South-Caucasian Railways” CJSC and the “Russian Railways” OJCS have concluded the concession agreement “On the transfer of the Armenian railway system to the “South-Caucasian Railways” CJSC created by the “Russian Railways” OJCS” on 13.02.2008.

Contingent Liabilities from PPPs

- Contingent liabilities stemming from PPPs are estimated at 6.92% of GDP

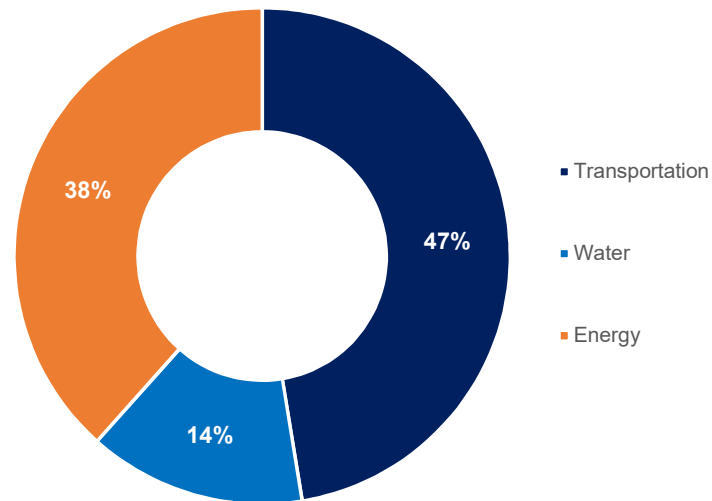
Name of Project	Sector	Other CLs	Early Termination	Total CLs	% GDP
South-Caucasian Railways CJSC	Transport		101.1	101.1	1.19
Veolia Jur CJSC	Water and sewage	13.0	70	83	0.98
Armenia International Airports CJSC	Transport	16.4	160	176.4	2.1
Contour Global Hydro Cascade CJSC	Energy		102.1	102.1	1.20
Armpower CJSC	Energy		103.3	103.3	1.22
FRV Masrik CJSC	Energy		19.4	19.4	0.23
Total		29.4	555.9	585.5	6.92

Source: Medium Term Expenditure Framework 2024-2026, Assessment of Fiscal Risks

PPPs Fiscal Risks

- Public private partnerships (PPPs) are potential channels for climate change related fiscal risks

PPPs and PPPs Contingent Liabilities



Source: Republic of Armenia, 2024-2026 Medium Term Expenditure Framework

PPP Climate Change Risk Exposure

Climate impact	Sector	Exposed PPPs and PPAs	Exposure
Reduced water flow in rivers and lower reservoirs	Energy: Hydro power plants compromised by lower water levels and flow, and possible limits on thermal and nuclear power plant cooling capacity.	Contour Global Hydro Cascade CJSC	PPA CLs: AMD102.1bn (1.2% of GDP)
	Water: Reduced water available for domestic distribution.	Veolia Jur CJSC	PPP CLs: AMD 83bn (0.98% of GDP)
Increase in large precipitation events, landslides, and mudslides	Energy: Hydro power limitations during excessive rainfall, and damage to transmission lines.	Armpower CJSC Contour Global Hydro Cascade CJSC	PPA CLs: AMD205.1bn (2.42% of GDP)
	Transportation: Damage to road, railway, and airports	South-Caucasian Railways CJSC Armenia International Airports CJSC	PPP CLs: AMD277.5bn (3.29% of GDP)
Increasing temperatures and extreme temperature events	Energy: Thermal power efficiency falls, and transmission lines are compromised by extreme heat.	Armpower CJSC	PPA CLs: AMD103.3bn (1.22% of GDP)
	Transportation: Damage to road, railway and air infrastructure.	South-Caucasian Railways CJSC Armenia International Airports CJSC	PPP CLs: AMD277.5bn (3.29% of GDP)

Conclusion

- Early adaptation will help to prevent the worst outcome.
- Measures to promote energy efficiency.
- Public investments to adapt to climate change.
- Investments to cope with disaster risks.