

## Case Study // Round Table SDG 11: Promoting resilient and sustainable cities and human settlements: intersectoral cooperation and evidence-based policies

### The KPIs for Smart Sustainable Cities and overcoming the data availability barrier in small cities

REC Caucasus

#### Summary

The purpose of this case study is to analyse the current situation of the city of Goris by using the key performance indicators (KPIs) elaborated by the UNECE together with the ITU, Committee of Urban Development of RA, and other partners, as well as with support the municipality in setting up their priorities for action.

Upon the request of the State Urban Development Committee of Armenia, the UNECE and a team of international and local experts elaborated this Profile for the city of Goris. Goris was selected as a pilot city for its strategic position in the system of roads in Armenia, its rich cultural and historical heritage, and the commitment of its community and local government to make their city smarter and more sustainable.

Smart city presents an overview of the situation of the city and in particular of the analysis of the economic, environmental and socio-cultural indicators for the city of Goris.

#### Situation

Goris is a medium-sized city in Armenia and is located in the southern province of Syunik. It is situated 240 km south-east of the capital, Yerevan, and 67 km from the provincial centre, Kapan. The city currently has 23,200 inhabitants and is the second-largest city in Syunik. It was first settled in the Stone Age, and is considered one of the most important historical and cultural sites in Armenia. It is a favoured destination of many local and foreign tourists, and possesses a large number of hotels and inns.

Goris is also interesting from an environmental point of view, with its mild climate, beautiful landscapes and fascinating natural landscapes. However, it is quite prone to natural hazards, in particular to earthquakes and landslides.

The economy of the city is mainly based on light industry, and it is home to several food-processing plants. Other quite developed industrial sectors are those of electric energy, food, textile and sewing, aluminium and metal-plastic products, woodworking and stone processing, and electronics. The Vоротan Hydropower Plant opened in 1989 in Goris and is considered one of the main providers of electrical power in Armenia. Other large industrial firms in Goris include the "Vosmar" company for asphalt concrete and crushed stone, the "Goris Gamma" for electronic devices, and the "Goris Group" for bottled spring water.

## ANALYSIS OF THE KEY PERFORMANCE INDICATORS (KPIs)

### ECONOMY

Armenia was part of the former Soviet Union, whose dissolution in 1991 had serious consequences on the country's economy, because of its strong dependence on cooperation with other ex-Soviet republics especially Russia. Armenia's economic reliance on remittances from abroad, especially from Russia, remained after its independence, due to the very large number of its working-age population living and working outside of the country. Armenia has also been greatly affected by the global financial crises in 2008-2009, which resulted in a dramatic increase in poverty. Rural regions were most affected, with about one third of the population living in poverty. Unemployment remains high, with general unemployment at 18%, including youth unemployment at 35 % (2014).

The potential for economic improvement is very high. However, capacity-building and awareness-raising concerning the opportunities provided by ICTs, in particular in business creation and growth, and also in tourism, education and research, and environmental technologies, such as waste recycling, water treatment and renewable energy systems, is needed.

By the decision of RA Government 973-N from 28 July 2011, the city of Goris was declared a touristic center. Located at the crossroads of international transit routes, Goris has the potential to become a transit zone between Armenia and Iran and contribute to the formation of the Great Silk Road touristic route."

### ENVIRONMENT

From an environmental point of view, the city is very rich in natural resources and in spring water which is supplied from the mountains and is of good quality. The same goes for the water supply in households, which is very reliable. Apart from the presence of two main roads within the city's boundaries, noise is not a big concern for the residents; dust and noise are restricted to a few areas close to the roads. The main issues in term of environment refer to waste management, the insufficient number of green areas, natural hazard adaptation and mitigation, and air quality. Concerning waste management, littering is a big issue, together with illegal waste dumping and burning. Air quality is not monitored in the city. This needs to be improved. Air quality monitoring stations should be built for at least the main cities in the country, because climate change adaptation is a priority for Armenia. The Government should help municipalities to limit their greenhouse gas emissions and improve energy efficiency in the residential sector.

Disaster risk reduction is a key priority for all levels of government in Armenia. Measures have been taken to address this issue and minimize the risk of environmental disasters and their impact, such as the development of policies for disaster risk reduction and the preparation of seismic hazard assessment maps. Goris is located in a risky seismic zone and is frequently subject to floods from the river Vararakn. Floods represent a permanent danger for Goris' inhabitants and its infrastructure, in particular during the rainy periods, and they affect the city's urban topography.

### SOCIETY AND CULTURE

The socio-cultural aspect is crucial for a smart sustainable city. In this area, Goris performs quite well in education, culture and health. However, improvement is still possible through the introduction of ICTs in schools, libraries and hospitals; the encouragement of adult education and professional skill building;

the promotion of a healthier lifestyle; and the building of cultural and recreation facilities. These would also benefit vulnerable groups. Social inclusion also shows positive results. In particular, gender equality is not perceived as an issue, and citizen participation is quite high. The main issues in this area include insufficient maintenance of the current housing stock, safety and poverty.

#### FINANCIAL FRAMEWORK

Goris lacks a proper financial system. The budgetary capabilities of the municipality are highly restricted, with little room for manoeuvre. Within the country, there is only one financial system, one State budget, and the same donors and international financial institutions. Some projects (e.g. street renovation) are financed directly by the State. The city owns real estate, which can be sold or leased in urban development operations.

Typically, a public-private partnership (PPP) is linked to the attractiveness of a project to the private sector partner and to the ability of the project to generate revenue and produce socio-economic benefits for the public sector. The ability to find good and reliable private sector partners and profitable projects is key for the realization of a PPP.

Cooperation with international and public organizations is very strong. Many international donors and international financing institutions (IFIs) (such as World Bank, Asian Development Bank, Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), and USAID) are already acquainted with the needs and possibilities of the city, and support diverse projects in Goris. Finding a common objective can facilitate the development of relevant projects and maximize synergies.

### Strategy

#### PHASE 1: GETTING STARTED: THE EXPERT WORKSHOP AND THE STAKEHOLDER CONSULTATION

The fact-finding mission to Yerevan, the capital of Armenia, and to Goris, was undertaken from 9 to 13 February 2015. It was organized by the UNECE, the State Urban Development Committee of Armenia, the city of Goris, the United Nations Development Programme of Armenia, and REC Caucasus. The mission included interviews with representatives of stakeholders, desk research, an expert workshop and a stakeholder consultation.

During the stakeholder consultation, the methodology of the preparation of the smart sustainable city profile, which is based on indicators, was presented and discussed. Further, an interactive discussion with national and local experts was organized; the discussion allowed for the collection of information on data and perceptions related to the current situation of the city's environment, urban planning, energy-efficiency, and economic and social perspectives. The stakeholder consultation was organized using the "Pyramid 2030 Campaign" approach.<sup>1</sup>

On the last day of the mission, international experts and representatives of the State Urban Development Committee, UNDP Armenia, the Asian Development Bank Armenia Office, and the Ministry of Territorial Administration met and agreed on the cooperation details.

<sup>1</sup> Source <http://pyramid2030.net/>

## PHASE 2. EVALUATING CITIES' PERFORMANCES WITH SMART SUSTAINABLE CITIES INDICATORS (SSCIS)

The city's performance was evaluated using the Smart Sustainable City Indicators (SSCIs), which were developed by ITU, and UNECE in consultation with other stakeholders in 2015. The list of the UNECE-ITU SSCIs includes 72 indicators which are grouped under the following structure:

- Pillars of sustainability: economy, environment, society and culture (see Figure 1); and
- Thematic areas of indicators. Eighteen (18) major thematic areas were identified and each indicator was assigned to one specific topic. Some topics include specific sub-topics, which can be considered as keywords that more thoroughly define the nature of the indicators.

Typology of indicators:

- Core indicators* can be used by all cities globally.
- Additional indicators* may be used by some cities according to their economic capacity, population growth, geographic situation, etc. These indicators are optional, especially for self-benchmarking. They are not normative.

The above-mentioned indicators have been used to develop the Smart Sustainable City Profile of Goris. The Profile will help the city's stakeholders to understand the needs of the city in order to become "smarter" and more sustainable and to receive recommendations about its priorities.

### Results and impact

The "United Smart Cities" Project had the following results

- Promotion of knowledge and best practice transfer concerning sustainable urban development;
- Taking sustainable development in cities at a global level;
- Support provided to national and local authorities to develop policies on sustainable urban development;
- Project has helped to establish partnerships and cooperation between stakeholders and identified and developed smart financing mechanisms;
- Project has extend the concept of smart cities to low- and medium-income economies; and helped in shaping strategic vision and planned action through collaborative effort, helped identify the most efficient use of city resources.

We have produced the following 1) Smart Sustainable Cities Profile for Goris: the Profile is a study of the current situation of a city by using the above-mentioned KPIs. Profiles measure the city's performance against the Indicators. They furthermore provide recommendations for the city to implement, in order to improve its sustainable urban development. A city action plan could be developed by the local experts with the support of international experts when funds are available.

Goris has become a member of United Smart Cities platform: the online platform, which can be found at <http://unitedsmartcities.com/>, provides a place where stakeholders can share expertise, good practices, and lessons learned, in relation to smart and sustainable urban development.

Capacity-building and training: capacity-building aimed to train, educate and raise awareness, at national and local level, on issues concerning smart sustainable cities.

Phase 1 (Fact-finding mission and Smart Sustainable Cities Profiles) - International and national experts, municipality staff and other relevant stakeholders meet in the city requesting the action. The stakeholders worked out key measures to make the city smarter and more sustainable. Key Indicators, taken from the UNECE-ITU Smart Sustainable Cities Indicators list, are proposed to monitor the process.<sup>2</sup> The result of this phase is the elaboration of a **Smart Sustainable City Profile with recommendations**.

Phase 2 (City Action Plan) - The list of key measures, discussed in Phase 1, has to be converted into an **Action Plan**. This Plan will be developed by experts, the Government and the municipality, contains a clear list of funding sources and the timeline for the implementation of the recommendations. A monitoring plan with targets should also be developed.

Phase 3 (Implementation and Evaluation) - **Sustainable solutions are implemented**. Experts monitor the implementation of the Plan throughout, and verify the process. Progress is evaluated based on regular progress reports that use the Indicators.

### Challenges and lessons learned

One of the key challenges identified during the design of the Goris Smart City profile was lack of data in some particular areas, for example of some of environmental matters and indicators, due to which data on cities was not collected or updated.

Visibility of Goris and its opportunities and potential was not evident, city has lots of potential for becoming larger tourism destination, and not only within the country, but for the region and for tourists worldwide. Local economy can benefit from improved cooperation with the local university and support the establishment of science-based SMEs.

City could improve and regulate the street network, by building ropeways, elevators and paths, as well as change the roads in the city centre into pedestrian zones, so as to reduce transport noise and air pollution.

Another set of recommendations concerns the new public green areas, establishment of a waste management system and development of a public awareness programme “Waste is a resource”. Local experts have mentioned the necessity to construct a simple waste water treatment plant.

The vulnerability assessment of the city shows the urgent need to implement preventive measures to control floods and to develop awareness programmes for earthquakes. In particular:

Flood risk: research suggests carrying out preventive measures in the areas identified as flooded or flood-prone areas, such as cleaning the Vararakn riverbed and flood channels; eliminating blockages; cleaning the bed of the Schori Dzor river and strengthening its dam.

<sup>2</sup> UNECE-ITU Smart Sustainable Cities Indicators. Available at: [http://www.unece.org/fileadmin/DAM/hlm/projects/SMART\\_CITIES/ECE\\_HBP\\_2015\\_4.pdf](http://www.unece.org/fileadmin/DAM/hlm/projects/SMART_CITIES/ECE_HBP_2015_4.pdf)

### Potential for replication

Development of Smart City Profile is replicable for the cities of Armenia, and in general, for the region. It gives a positive impetus for development of systematic, smart and well planned approach in urban development, covering almost all important and vital priority areas which matter for the future prosperity, healthy and environmentally friendly city, providing jobs, social care and technology solutions for its citizens. UNECE should continue working on Smart city profiles in Armenian cities, and also continue implementation of recommended measures through partnership with local stakeholders, municipalities, central government, civil society, banks and donor organizations.

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