INTERSESSIONAL PANEL OF THE UNITED NATIONS COMMISSION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)

Geneva, Switzerland
17-19 November 2021

Contribution by Switzerland

to the CSTD 2021-2022 priority theme on "Science, technology and innovation for sustainable urban development in a post-COVID world"

PRIORITY THEME 2: STI for sustainable urban development in a post-COVID world

United Nations Commission on Science and Technology for Development (CSTD)

Dear CSTD member,

The 24th CSTD annual session selected "STI for sustainable urban development in a post-COVID world" as one of the priority themes for its 25th session (2021-22 period). This theme addresses SDG 11 on sustainable cities and communities.

Urbanization is a complex megatrend touching on various issues including economic transformation, environmental sustainability, inclusion and poverty eradication, and resilience to natural disasters, climate change, and public health emergencies like the COVID-19 pandemic. Cities also play a central role in shaping innovation and technological diffusion. In addition, peri-urban areas present increasing challenges in terms of poverty, sustainability, mobility, and economic performance. The 19th CSTD explored innovation and urban development in 2016. Since then, accelerating technological change and its deep impact on issues such as urban planning and management, critical systems' resilience, and citizen and community involvement make it advisable for the CSTD to update its findings and to examine and share emerging good practices and consider the latest trends in science, technology and innovation that can contribute to greener, more resilient, and more inclusive cities, particularly in light of the knowledge gained in developing innovative responses to the challenge of COVID-19.

The CSTD secretariat is drafting an issues paper on the theme to be presented at the CSTD inter-sessional panel to be held on 17-19 November 2021. In this context, we are seeking inputs from CSTD Member States. We would be grateful if you could kindly answer the following questions based on your experience from your country or region.

1. What are the concrete challenges that your country has encountered in transition towards sustainable urban development to make cities productive, inclusive, and liveable?

   The 2030 Agenda for Sustainable Development accords central importance to urban and built-up areas, recognising that sustainable urban development and management are key to people's quality of life. Indeed, the 2030 Agenda includes a fully-fledged goal on cities and human settlements, as well as a range of other goals – on poverty, food security, health, education, water, energy, infrastructure, economic growth and employment, gender equality, and climate change – that are closely linked to sustainable urban development. Implementation of all SDGs will, for the most part, also take place in urban communities. One of the most significant opportunities for sustainable development lies in urban dynamics.

   Switzerland has been heavily involved in drawing of 2030 Agenda for Sustainable Development, considering this agenda as a point of reference for sustainable development until 2030. Consequently, Switzerland is no exception in taking action to implement the 2030 Agenda in all its thematic areas in both domestic and foreign policy. In addressing the issue of sustainable urban development, the 2030 Agenda provides an opportunity to look specifically at Swiss implementation of the SDGs – and respective targets – that relate to sustainable development in urban areas.

2. How has the Covid-19 pandemic so far impacted on sustainable urban development, and what lessons could we draw from the Covid-19 pandemic on sustainable urban development?

3. What projects/policies has your country implemented to use science, technology, and innovation to make cities productive, inclusive and liveable? What are the main outcomes? What are the main challenges confronted while trying to implement these projects/policies?

Example 1 : High quality Transport Infrastructure

Switzerland has a well-developed, high-quality transport infrastructure. The Federal Constitution stipulates that public transport be available at the same terms and at affordable prices to all social classes and regions of the country. However, Switzerland's contribution to SDG target 11.2 should not end there. Current challenges are around the sharp rise in passenger and freight traffic due to demographic and economic factors, and the increasing spatial division between work, home and recreation.

Accessibility by rail to Swiss urban centers is of a high standard. Improvements to the transport network are still possible and are already being taken into account as part of the latest expansion plans. One major issue in particular relates to sustainable funding of further infrastructure improvements which also consider the specific needs of cities and conurbations. Given the high concentration of built-up areas, economic hotspots and transport infrastructure in what is a country with limited space, the biggest challenges lie in coordinating transport and urban planning, and in reconciling safety, emission reductions and amenity value with capacity requirements in dense urban centres in particular.

Example 2 : Knowledge of Land Use in the Context of Natural Hazards

The Swiss Confederation has a mandate to ensure that people and material assets are protected from natural hazards (of which the most common in Switzerland are floods, storms, landslides and avalanches). Adaptive land use constitutes the most efficient way to mitigate the impact of natural hazards. Yet, whenever this approach is not possible, structural or organisational measures are especially necessary to reduce the vulnerability of buildings and facilities.

Timely alerts and notifications help to prevent damage. The amount spent on protection against natural hazards equates to around 0.6% of Switzerland's GDP. Swiss expertise and know-how in dealing with natural hazards – in other words, the Swiss contribution to achieving SDG target 11.5 – are considerable in international comparison. However, Switzerland is not immune to the ever-increasing risk and damage associated with natural hazards. Here, the main challenges are urban expansion and more intensive land use in sensitive locations, as well as increased risk from natural hazards and the proliferation of extreme weather events due to the effects of climate change.

The construction of elaborate protective structures can prevent damage. Yet, spatial planning measures and cooperation between the public and private sectors are also gaining in importance. Knowledge regarding the continual intensification of land use is a key prerequisite for minimising risk, which is why work on analysing land use risk is currently ongoing.

4. Can you provide examples of policies/projects/initiatives aimed at strengthening national STI capabilities for sustainable urban development? For example, how does your country build technology and innovative capabilities through investments in R&D and human capital? What institutional and regulatory arrangements are in place to stimulate R & D and innovation, and to effectively address unintended consequences of technological innovation, such as privacy, ethical, gender and other concerns?

Example 1 : Air quality, renewable energy and waste management

Switzerland has cut its greenhouse gas emissions in the last two to three decades despite a growing economy and population. In the area of natural resources, it has made great progress in recent decades with regard to air quality and abating water pollution.

Efficient infrastructure and extensive legislation enable Switzerland to manage waste effectively. In addition to various statutory provisions, 'Energy Strategy 2050' also plays a major role in putting SDG target 11.6 into practice in Switzerland. Implementation of Energy Strategy 2050 is contingent, for example, on reducing final energy and electricity consumption, raising the share of renewable energy and cutting energy-related CO2 emissions. The big challenge

(and respective approach) is being able to do this without jeopardising today's high levels of energy supply security at acceptable prices.

There is also a certain trade-off between social, energy and climate policy, notably within the socio-economic household context. Switzerland's energy system must not be allowed to hinder social participation. Besides new technology, guidelines and legislation, any reduction in the environmental impact of cities also depends in particular on the Confederation, cantons and cities working together, and on business, science and society also doing their bit.

Example 2 : Greening Public Spaces

People in Swiss urban areas have universal access to safe, accessible, green public spaces, which are seen as essential to quality of life. However, urban population growth and the increasing amount of land use are required for economic activity, transport, leisure and recreation. The preservation and continued development of public spaces – in the interests of recreation, sport and nature – consequently take on ever-greater importance. Science and innovation, e.g. the development and the integration of different transport modes and systems play an important role for greening public urban spaces.

Underlying factors: Education, research and innovation as key factors in making urban areas sustainable

From a Swiss perspective, education, research and innovation are crucial factors in ensuring sustainable urban development. They are the key to generating new knowledge, promoting social integration and increasing competitiveness. Switzerland's dual education system and array of internationally competitive universities give its conurbations and metropolitan areas an important edge over their counterparts in other countries. With its strong research focus, Switzerland is also an international leader in innovation. One particular asset in this context is Switzerland's blend of highly innovative SMEs on the one hand and numerous large R&D-focused multinationals on the other. A skilled workforce is key for that and the education system needs to effective in identifying, nurturing and making the most of people's talents. Improvements to existing infrastructure eliminate social, cultural, economic, migration-related and disability-related discrimination while taking evolving needs into account. In particular, greater promotion of higher vocational education and training as an equivalent option at tertiary level is one way to address this issue.

5. Could you share case studies of regional and international cooperation that have helped your country in strengthening STI capacities? Can you provide success stories in this regard?

Urban Development in International Cooperation

Through its international cooperation, Switzerland engages in the following priority areas of sustainable urban development: inclusive urban planning and management comprising climate resilience and energy efficiency, economic development and integration, good governance, equitable basic service delivery, social inclusion, rural - urban migration and rural urban linkages.

Switzerland addresses these priority areas at the operational level, both locally, nationally, and at the global policy level in order to contribute to further developing and shaping of international standards and approaches based on experiences on the ground. The Dispatch on International Cooperation recognizes urbanization as challenge, which has to be addressed with cross sectoral approaches. Urban development is defined with a focus on climate compatible urban planning and infrastructure development, inclusive governance and equitable access to quality basic services as priority lines of activity for Swiss development cooperation. With the unprecedented urbanization of the world in the 21st century there is a growing shift of development challenges from the rural to the urban space. It is therefore important to consider how economic, social and environmental challenges of rapid urbanisation can be best addressed in a comprehensive manner.

Regarding risks of natural hazards, there is a direct link with climate change. This needs to be addressed internationally. Switzerland is very engaged to climate change mitigation. Amongst others, 15% of its international cooperation funds are implemented in the area of climate change. Switzerland is also committed to mobilising the private sector more to make eco-friendly investments in developing countries, and advocates for this at the multilateral level and with the private sector itself in order to generate more funds.

Example: Collaboration with EPFL on Low Carbon Cement

The Swiss Agency for Development and Cooperation (SDC) has been supporting the Low Carbon Cement (LCC) project since 2013, which aims to initiate the commercial production of a new cement mix called Limestone Calcined Clay Cement (LC^3) in India and Cuba, which uses calcined clay together with limestone as a partial substitute for traditional cement clinker and thus has the potential to reduce the CO_2 emissions significantly. This is of particular interest, as around 8% of man-made CO_2 emissions worldwide originate from cement production and since the demand for cement continues to increase rapidly, particularly in developing and emerging countries due to urbanisation, infrastructure development and growing population.

The Project is implemented by the Swiss Federal Institute for Technology in Lausanne (EPFL) in collaboration with the Indian Institutes of Technology (IIT) in Delhi and Madras, Indian based Society for Technology and Action for Rural Advancement (TARA) and the Universidad Central de Las Villas (UCLV) in Cuba.

The project carried out trial productions and applications (pavements, prefabricated housing elements, small roads, concrete platforms, etc.) in India and Cuba and proofed the technical and economic viability of LC_3. The standardization of LC_3 has been finalized in Cuba respectively is on its way in India. The two established Technical Resource Centres (TRCs) in India and Cuba are supporting smaller cement companies in Asia, Africa and in the Latin American region in the introduction and commercialisation of LC_3. LC_3 gained interest among cement companies globally and various international cement companies have now initiated their own projects on the LC_3 technology (e.g. Holcim, Heidelberg).

6. Could you suggest the contact person(s) of the nodal agency responsible for projects/policies or international collaboration related to the theme? We might contact them for further inputs.

For any contacts to Swiss government agencies, including the Swiss Agency for Development and Cooperation, please feel free to reach out to the Office for Communication (andrin.eichin@bakom.admin.ch) and/or the Mission of Switzerland in Geneva (alexander.schaerer@eda.admin.ch).

Please send your responses and any further inputs on the theme to the CSTD secretariat (stdev@unctad.org) by 6 September 2021. We look forward to receiving your valuable inputs.

Sincere regards,

CSTD secretariat