CITIES CONTEMPORARY LABORATORIES

Tokyo - 35 million, Mexico City - 20 million, Sao Paulo - 19 million and Mumbai - 18 million are the world's four biggest mega cities that have, according to UN Habitat, possibly a third or maybe even half of the population of some G8 countries. In fact, there are 163 countries with populations smaller than Mumbai.

Modern cities are like magnets; they attract everything from flows of people and goods to commercial exchange and ideas. The World Bank estimates that the biggest 10 mega cities generate 20 % of world's GDP, while representing only 2 % of its population. If the last century was regarded as "the century of city consecration", the new-century city could be the place where the sustainability and future of mankind will be determined.

In 1950, 30 % of the world's population was living in cities. By 2030, according to a UN Populations Fund estimate, 60 % of the world's population will be living in urban areas. In May 2008, for the first time in history, the countryside/city resident ratio was reversed meaning that most of the world's population does not live in the countryside.

Thus, like any nerve center, the city becomes the new frontier of risk and opportunity. International issues are reflected in local policies, and municipalities need to find local solutions for international problems.

Tokyo, New York, London, Madrid, Mumbai, Moscow, Istanbul – some of the world's biggest cities – have each experienced at least one devastating terrorist attack in the past 15 years. However, terrorist acts represent only a small fraction of the total number of crimes committed on a daily basis. Crime in urban areas and associated safety and security problems present significant challenges.

Cities must be sustainable on various levels: economic, social, environmental, and in terms of human rights. But the first pillar of citizens' well-being is ensuring their safety and security. City leaders who cannot deliver safety and security for their citizens may well face real difficulties promoting almost any other political issue on their agenda. It does not mean that safety and security are more important than environmental preservation or social equity, but it does mean that without safety and security, goals like improving environmental quality or social protection are unlikely to be achieved.

Every day, in cities around the world, large amounts of data and information on criminal activity is delivered to the tables of urban policymakers. This data is often compiled into reports and analyzed to produce a range of statistical returns. Advisors that work closely with city leaders face the ongoing challenge of quickly

analyzing the available information and presenting it in an easily accessible format. Usually, the generated information ends up being useful for long term policy making, but there are often shortcomings in terms of its usefulness to design effective responses to more immediate events or for conducting real-time crime pattern analysis activities.

Technology can provide useful tools for making sense of incidents as they arise, individually and collectively. We have already witnessed the very fruitful use of remote sensing systems in cities as they, for example, deliver detailed satellite maps that are presented in a user-friendly way online. But technology has also started to be used in an indirect way. The increasing deployment of sensors and hand-held electronics has allowed for a new approach to the study of the built environment. Technology can be used to understand the patterns of different dynamic flows in the city such as people's movements, events, and environmental conditions and thus map the macro dynamics taking place in a city at any given time.

Real-time analysis of such comprehensive systems could contribute greatly to crime prevention as it can assist in anomaly detection and disaster management and response scenarios. Still, the same digital infrastructure can be used to encourage the public to report crimes as well as to provide information to the public that is both location-specific and in real-time.

Cities, on one hand, are the new frontier for threats and challenges, but, on the other hand, they are a frontier for innovation. Partnerships between academia, public organizations, and private entities could pioneer the transition of innovation in science, engineering, and policies into solutions that could significantly improve the quality of life in our biggest population centers.

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