

## ***La mobilité urbaine.***

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According to the United Nations, Department of Economic and Social Affairs [1], the world population is projected to be between 9.4 and 10 billion in 2050 with 80% of that in Asia and in Africa. At the same time the percentage of the population residing in urban areas is predicted to grow from 54 % in 2014 to 66% in 2050, and the number of megacities of more than 10 million inhabitants will also increase [2]. Asian and African cities will show the highest growth rates, with 90% of the projected 2.5 billion global increase in population by 2050 being localized in those cities. Furthermore, the overall number of people above 80 will grow globally to half a billion by 2050; meaning that the current population will be multiplied by a factor of three.

Thus, the world is undergoing a huge transformation. Industries around the world now have an added obligation of reducing their environmental impact in simultaneously maximizing energy and resource efficiency, maintaining the quality of life of the inhabitants in the city and protecting the environment. PSA Group has been a pioneer and still a leader in these topics. However, in light of that, to prepare the future, the transport industry has to address several challenges. In the case of the automotive industry, their primary goal will always be to produce vehicles that are affordable and accessible to the general population. Thus, in a connected world, where autonomous cars play an important role, where the pressure of environmental regulations is high, and where there is a strong emphasis on safer vehicles, material science and chemistry will play a major role.

In fact, the solutions to some of the challenges are already available with the technology we have today. However, the difficulties lie in scaling up the solutions for a mass production market. As a result, the problem still remains to be addressed and is an opportunity for the future.

There are many areas where advances in chemistry will be necessary. Breakthroughs in lightweight material technologies will help to reduce vehicle mass; improvements in high performance biomaterials can reduce the lifecycle print of cars; electrochemical systems can be developed to replace the existing lithium technologies; a lot of work is ongoing on diversifying electricity production and etc.

In all these areas, the common theme is that research in chemistry will play a central role in developing the solutions.

[1] United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, Key Findings and Advance Tables. Working Paper No. ESA/P/WP.241.

[2] United Nations, Department of Economic and Social Affairs, Population Division (2014). World Urbanization Prospects: The 2014 Revision, Highlights (ST/ESA/SER.A/352).

**Mots Clés :** environmental impact, energy efficiency, lightweight material, chemistry