

The Chemical Element in the Millennium Development Goals

by

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When United Nations declared 2011 as the International Year of Chemistry, I thought about how I could contribute to both celebrating the achievements of science and the potential that chemistry holds to create a better and more sustainable future for all. Because of all these reasons, it seemed to me appropriate to use the Millennium Development Goals (MDGs) as a framework for editing the book "The Chemical Element: Chemistry's Contributions to Our Global Future "(Wiley 2011) <http://www.thechemicalelement.com/>

This book illustrates the enormous contributions that chemistry has delivered to the community in improving our quality of life, health, access to water, poverty reduction and jobs creation. But mostly "The Chemical Element" is a call to the world's scientists to put their talents to help reach the Millennium Development Goals. I am convinced that, as we have seen in the past, access to better technology is critical to provide energy, water, food and medicine to an increasingly crowded Planet. This requires a new generation of scientists working to improve the quality of life for millions of people, the state of the environment, and ultimately to build a better future for all.

In order to have that new generation of scientist who will champion in global issues, it is essential that we change some fundamental aspects of our educational system. On the one hand, the curriculum should include topics related to the MGDs. Our scientists must be aware and able to solve problems that affect us all. On the other hand, I worry that formal education kills the creativity and curiosity that we all have when we are children. It does not seem right to educate our students as if everyone were alike. Giving high

marks to those who respond well to our questions (which only offer a solution) instead of rewarding students who raise new questions or offer original responses, the current educational system penalizes the talented and the genius and reduces the ability of future scientists to find the solutions we so urgently need for the global challenges we face today. The XXI century, is no longer enough to make things better – but it's about doing things differently. We desperately need disruptive innovations to provide cheap and clean energy, safe drinking water for a billion people and food at an affordable price for everyone. Only when we educate the next generation of scientists to think in an original and daring way, we can build the future we all desire.

About The Chemical Element

In the International Year of Chemistry, prominent scientists highlight the major advances in the fight against the largest problems faced by humanity from the point of view of chemistry, showing how their science is essential to ensuring our long-term survival.

Following the UN Millennium Development Goals, the authors examine the ten most critical areas, including energy, climate, food, water and health. All of them are opinion leaders in their fields, or high-ranking decision makers in national and international institutions. Intended to provide an intellectual basis for the future development of chemistry, this book is aimed at a wide readership including students, professionals, engineers, scientists, environmentalists and anyone interested in a more sustainable future.

Profile: Prof. Javier Garcia Martinez, University of Alicante, Spain, Co-Founder, Rive Technology, Inc., Cambridge, MA, USA



Javier is faculty member and director of the Nanotechnology Molecular Laboratory at the University of Alicante, Spain. He has published extensively in the areas of nanomaterials, catalysis and energy and is inventor of fifteen patents.

Javier is also co-founder of Rive Technology Inc (Boston, MA), a clean energy company, commercializing advanced catalyst technology that has raised \$47 million in venture capital funding from leading investors.

Javier is vice-chair of the World Economic Forum General Assembly Council on Emerging Technologies and Titular Member of the International Union for Pure and Applied Chemistry (IUPAC).

Javier has been recognized as a leader in nanotechnology and materials science. In 2005, Javier was awarded the Europa Medal, awarded annually to the outstanding European chemist under the age of 35. In 2007, Javier received the TR 35 Award from MIT's Technology Review magazine, and in 2009 Javier was selected as a Young Global Leader by the World Economic Forum.