



Responsible nanotechnology R&I – Societal engagement practices

UNITAR's Nanotechnology workshops in Latin America and the Caribbean

Introduction

NANO2ALL is funded by the European Union's Horizon 2020 Research and Innovation programme under the Grant Agreement Number 685931. It supports the establishment of Responsible Research and Innovation (RRI) policy and governance on nanotechnologies. NANO2ALL also aims to identify RRI practices, with a focus on societal engagement in nanotechnology research and innovation (R&I) across Europe and beyond, to share knowledge, experience and recommendations with other nanotechnology stakeholders and motivate a wider application of such mechanisms in our region.

RRI anticipates and assesses potential implications and societal expectations regarding R&I, to foster the design of inclusive and sustainable R&I. As a dimension of RRI, societal engagement implies interactions between relevant stakeholders (companies, research organisations, policymakers, civil society organisations (CSOs), consumers, affected citizens and others), to align research, development and innovation with the values, expectations and needs of the society. Such interactions can take various shapes, such as brainstorming, scenario workshops, user committees, online forums, dialogues, informal / formal meetings, or other formats.

In this report we analyse the role of societal engagement in a series of regional workshops on nanosafety organised in Latin America with the support of the United Nations Institute for Training and Research (UNITAR). It is based on desk research analysing the information and documents posted on the nanotechnology project pages at the UNITAR website, reports on nanotechnology presented during the International Conferences on Chemicals Management (ICCM3 and ICCM4) and interviews with Dr. Georg Karlaganis¹ and Dr Alba Avila².

¹ Georg Karlaganis is senior advisor at UNITAR and former head of division at the Swiss Federal Office for the Environment, responsible for the Swiss Action Plan for Nanotechnology in 2008. The interview took place by telephone on 23 January 2019. He contributed slides from his presentation "Emerging Policy Issues – Nanotechnologies and Manufactured Nanomaterials" held 7 September 2018 in Geneva.

² Dr Avila is professor at the Universidad de los Andes in Bogota, Colombia, and one of the organisers of the workshop on "NANOTECHNOLOGY and Manufactured nanomateriales in Latina America and the Caribbean-SAFETY ISSUES" in 2015. The interview took place by skype on 15 February 2019.

Nanotechnology project UNITAR

UNITAR was established in 1963 as the autonomous training arm of the United Nations system, aiming to “enhance the effectiveness of the UN through diplomatic training, and to increase the impact of national actions through public awareness-raising, education and training of public policy officials.”³

The nanotechnology project is part of UNITAR’s Chemicals and Waste Management (CWM) programme since 2009 and mainly funded by the Swiss government. The CWM offers “support to governments and stakeholders to strengthen their institutional, technical, and legal infrastructure and capacities for sound management of chemicals.”⁴ UNITAR’s nanotechnology project is a part of the wider regulatory framework for nanomaterials at a global level analysed by Georg Karlaganis and Rachel Liechti (2013).⁵

Nanotechnology is an emerging policy issue tabled at the Strategic Approach to International Chemicals Management (SAICM) since the ICCM2 conference in 2009. UNITAR supports the SAICM by building capacity in “developing countries in raising awareness on nanosafety issues and in considering the implications of nano-based and nano-containing products traded across borders.”⁶

The UNITAR guidance document “Developing a National Nanotechnology Policy and Programme” (2009) and other materials, form the basis of three rounds of regional workshops on nanosafety organised by UNITAR together with the OECD, and of 2x3 national country projects engaging all relevant stakeholders in developing a policy for governing nanotechnology. In addition, the institute raises awareness, e.g. through an e-learning course introducing nanomaterials safety.

Regional workshops

UNITAR (mandated by the Swiss government) and OECD organised three series of regional awareness raising workshops in developing countries and transition economies in several UN-regions (Asia-Pacific, Latin America and Caribbean, Africa and Central and Eastern Europe) in 2009-2010, 2011, 2015 and 2018, as well as a sub-regional conference in the Arab world in 2010. Workshops were organised as often as possible, subject to the availability of funding. The regional workshops lasted two days.

In the first 3-year period (2009-2012), the workshops contributed to the preparation of regional positions, resulting in a report to the ICCM3 conference. Participants in the African regional workshop took the initiative to add nanomaterials to the SAICM’s Global Plan of Action, which was supported by the South American and Caribbean region. They also recommended that UNITAR and others should continue to support capacity building and national pilot projects. The second round of regional workshops in Africa, Latin America and Asia-Pacific contributed to the establishment of nanosafety networks. The needs and challenges of each region were identified and prioritised, and information exchanged between the participants.

An independent evaluator, Dr Robert Nurick, analysed the impact of SAICM in 2006-2015. On Nanotechnology, 37% of the policy makers and stakeholders reported being very or somewhat successful in incorporating nanotechnology in their activities including stakeholder dialogues, while 24% reported little or no success and 38% did not know. However, national contact points from Africa, Central and Eastern Europe and Latin America and Caribbean reported low success rates, also in public outreach⁷.

The focus of this case study is on the societal engagement activities in the subsequent second and third round of regional workshops held in Latin America and the Caribbean, to assess what has been done to address this issue.

³ Source: <http://www.unitar.org/institute>

⁴ Source: <http://www.unitar.org/cwm/>

⁵ Georg Karlaganis, Rachel Liechti. The Regulatory Framework for Nanomaterials at a Global Level: SAICM and WTO Insights. RECIEL 22 (2) 2013. ISSN 0962-8797

⁶ Source: <http://www.unitar.org/cwm/portfolio-projects/nanotechnology>

⁷ <http://www.saicm.org/About/SAICMEvaluation/tabid/5513/language/en-US/Default.aspx>



Latin America and the Caribbean

The second and third “Technical Workshops for the Latin American and Caribbean Region on Nanotechnology and Manufactured Nanomaterials: Safety Issues” were well documented. In 2015, the workshop was held in Bogota, Colombia, on 22-24 June (Avila et al, 2015).⁸



The 30 participants included representatives of 11 countries in the region: Mexico, Ecuador, Costa Rica, Argentina, Chile, Brazil, Uruguay, Peru, Panama, St. Vincent and the Grenadines and Colombia. The programme included presentations about the state of the art and working group discussions to identify gaps in nanotechnology governance that needed to be addressed in the short (by 2015), medium (2015-2020) and long term (2020-2025).

In the interview, Alba Avila explains how the workshop was organised: *“The programme was approved by UNITAR, the Colombian government and collaborating governments, and the program was discussed between UNITAR, the Minister for the Environment and the Universidad de los Andes. Participants included ministries for environment, commerce and tourism, health and education, nanotechnology associations and academia. For Colombia it was part of the process to join the OECD. Participants were active in nanotechnology projects or related to UNITAR. We selected the specific questions that the participants should address in 10-15 minutes presentations. More participants from the Caribbean were invited, but only St. Vincent and the Grenadines was represented. Nanosafety was not yet on the government’s table of other countries. **One NGO was represented, concerned about nanotechnology in agriculture.** This is an important economic sector in Latin America. While Latin American countries import a lot of nanomaterials, no effort is made to label nanoproducts.”*

⁸ Alba Ávila, Ana María Ocampo, Oliver Wootton, Felipe Muñoz, Pablo Vieira (2015) Nanotechnology and Manufactured Nanomaterials in Latin America and the Caribbean: Safety Issues (2015: Bogotá, Colombia, and https://nanoseguridad.uniandes.edu.co/images/Nanotechnology_ingles_digital_012016AA.pdf and <http://www.unitar.org/cwm/nanosafety-regional-workshop-latin-american-and-caribbean-region-colombia>

The UNITAR workshop helped raise awareness of nanosafety in Latin America. As a **follow-up, a slot on nanosafety was included in the programme of subsequent academic nanotechnology conferences**, including the Colombia-US workshop on nanocharacterisation in 2016 and another conference in November 2018. In addition, the next Latin American and Caribbean regional strategy workshop was organised with support from UNITAR and OECD in **Panama on 1-2 February 2018**.⁹ This time, 25 participants represented governments, civil society and research organizations, and academia. Several participants had also attended the workshop in Bogota. Some of the same issues were revisited, but also some recent developments including the publication of WHO guidelines for occupational nanosafety and OECD Good Laboratory Practices and Test Guidelines. Several regional collaboration initiatives had started since 2015, including interlaboratory collaboration on test protocols, nanosafety programmes and tools. New offers for sharing information and collaboration were made. **Additional priorities were to include more stakeholders such as civil society, the International Labour Organisation, and Ministries of Health.** Measures to facilitate sharing of information in the region and at global level and traceability of nanomaterials in products were also mentioned.

Some positive impacts of the workshop have been reported. Colombian nanoscientists are collaborating with the national standardisation body ICONTEC¹⁰ and are adapting standards originating from ISO to support the Colombian industry. The Latin American network on Nanotechnology and Society RELANS¹¹ has used materials collected during the workshop in publications and has extended its regional collaboration. Initiatives are undertaken to include nanosafety in higher education courses and conferences. A list of nanomaterials that are most used in the laboratory and imported or produced in the region has been compiled. Inter-laboratory collaboration was established between Uruguay and Mexico, leading the generation of a technical protocol currently under review by the International Organization for Standardization (ISO). CEDENNA de Chile implemented a Safety program for their nano Laboratories and a risk management framework. And the Universidad de los Andes (Colombia) continue to develop and make available their NanoRisk application¹² (attracting users from the whole region) and guidelines for the handling nanomaterials. Other collaboration offers involving Chile and Brazil were also made.¹³ **However, the recommendation to organise periodic stakeholder meetings is not included in an official nanotechnology white paper.** A collaborative proposal has been made to investigate the impact of nanomaterials on air, water and soil. The UNITAR guidelines have not been formally adopted, but academic researchers follow them voluntarily.

Recommendations and lessons learned targeting societal engagement

According to Georg Karlaganis, SAICM is a good **international platform** to discuss environmental, health and worker protection issues related to nanotechnologies and nanomaterials with policy makers from all world regions and other stakeholders. He hopes this discussion will be continued after 2020.

Alba Avila remarked that the interest of well-known **international authorities** (UNITAR, OECD) in nanosafety helped raise interest of local governments. The report of the regional workshop¹⁴ has a **formal** ISS-number and can be used in education courses. The **UNITAR guidelines** form a solid basis that can be adapted to specific national circumstances.

⁹ Nanosafety Workshop for the Latin American and Caribbean region, Panama City, Panama – 1 and 2 February 2018, <http://www.unitar.org/cwm/nanosafety-regional-workshop-latin-american-and-caribbean-region-panama>
Workshop summary

¹⁰ <https://www.iso.org/member/1644.html>

¹¹ <http://www.relans.org/inicio.html>

¹² https://nanoseguridad.uniandes.edu.co/nano_en/indexeng.html

¹³ Details are included in: Nanosafety Workshop for the Latin American and Caribbean region. Panama City, Panama – 1 and 2 February 2018. Workshop summary (17 April 2018)

¹⁴ available online via the website: <https://nanoseguridad.uniandes.edu.co/>



Lessons learned include the following: Because there was no **globally binding regulation** governing nanomaterials, national and international authorities invested little resources in societal engagement in this project. If risk governance of nanomaterials would have been mandatory, these authorities were obliged to take action to implement it, but now other priorities prevailed.

In addition, it turned out to be difficult to attract **additional funding** to the funding from the Swiss government. Efforts are underway to apply for funding from the Global Environmental Facility (GEF) for continued discussions at SAICM on environment, health, worker protection and other and safety issues of nanotechnology after 2020. Georg Karlaganis gives an example to illustrate why this is needed: “African countries are interested to continue discussions of nanosafety, e.g. to be able to assess the risk of nanoparticles which are imported from European countries for downstream use in Africa. Without proper worker protection, the local users can put themselves at risk.” Likewise, Alba Avila stresses that funding from local environmental authorities or industrial ministries is needed for data collection and for organising regular stakeholder meetings to exchange information and foster collaboration, to maintain the momentum.

