



Nanosciences, Nanotechnologies, Materials and New Production Technologies Deployment in Latin American Countries

Addressing societal challenges:



Water | Energy | Health

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Stable investment in nanotechnology, materials and production technologies

Fragmented and intermittent funding for science, technology and innovation in Latin America is a major bottleneck hampering economic growth and solutions to societal grand challenges. Participants in the NMP-DeLA community of interest recommended establishing a common long term investment strategy for nanotechnology, materials and production technologies. This should pool resources from the EU, national governments and private industry, banks and investors.

Decision makers and stakeholders: governments participating in the EU-CELAC policy dialogue, innovative (multi)national industry and SMEs, basic and applied interdisciplinary researchers, banks and investors.

Introduction: creating conditions for growth

A prerequisite for sustainable innovation is prolonged access to funding for research and private investments in innovative business development. Financial stability allows bright scientists to focus on inventing truly new technologies and engenders trust in innovative entrepreneurs that their investments will be profitable. This is especially true for nanotechnologies, advanced materials and production technologies (NMP), which require major investments in research infrastructure and equipment. This calls for international cooperation and pooling of resources.

Some proposed solutions

Policy makers from Europe and Latin America should strengthen the local capacities for innovation in nanoscience and nanotechnology by agreeing a common long term strategy and by pooling resources for common research and innovation priorities as part of the European Union and Community of Latin American and Caribbean States (EU-CELAC) policy dialogue.

A balanced funding strategy is needed including research, infrastructure, education, as well as environment, health and safety (EHS) and ethical, legal and social aspects (ELSA). The United Nations Institute for Training and Research (UNITAR) focuses on training and capacity building of governments in developing countries and has published a pilot "Guidance for Developing a National Nanotechnology Policy and Programme" (UNITAR, 2011). This could form the basis for such (bi-)regional coordination.

Organising the intervention

The European Horizon 2020 programme offers a good starting point with its 7-year budget horizon. National funding within Latin America should also be coordinated, as well as with European, North American and other funding including World Bank, International Monetary Fund (IMF), and preferably also venture capital. The participating Ministries in NMP-DeLA (from Argentina: the Ministry for Science, Technology and Productive Innovation and from Uruguay: Education and Culture, and Industry, Energy and Mining) and the European Commission should take the initiative for such coordinated funding. As Brazilian and Mexican federal and state funding councils must fund their own researchers participating in projects in the EU H2020 programme, these should be engaged in coordinating funding strategies from the start.



In the short term, the sector dialogues could offer funding for cooperative projects in cooperation between the EU and Brazil.

Short term (2020)

During the H2020 programme, the EU can take the initiative for joint calls with Latin American countries targeting priorities in NMP for health, water and energy such as translational nanomedicine, nanomedicine for tropical diseases, arsenic removal from mining and groundwater or public-private initiatives for solar energy applications.

The bi-annual EU-CELAC summits could explicitly address NMP in the area “science, research, innovation and technology” in the next update of their action plan. Targets and performance indicators for NMP should also be included in the roadmap foreseen in this action plan. Relevant indicators could be the existence of a regional pool of funding for NMP research and the existence of incentives for innovation per country. Other indicators could be the levels of national funding for patent developments, numbers of patents per researcher, or numbers of start-ups based on outcomes of NMP research. The Technology Readiness Levels of the results of research could also be used to monitor the capacity for technology transfer. Some joint business can be meanwhile set up. Activities aiming at this have just started in the auspices of the European and Latin American Technology Based Business Network (ELAN), which includes nanotechnologies as one of its focus areas.

Medium term (2020-2025)

Beyond the H2020 time horizon, more mature NMP developed in cooperation with Latin American researchers and companies should be integrated in the investment strategies of World Bank, IMF and other investors targeting health, water and energy solutions. The EU and CELAC representations could take the lead in involving other funding organisations. The percentage of investment of international companies in R&D in Latin America could be an indicator for measuring progress in national strategies to enhance this participation. Other indicators could be the percentage of private investment in start-ups and incubators and the number of international companies establishing sites and subsidiaries in Latin America.

The number of new start-ups could be an indicator for increasing venture capital funding.

Long term (2025-2030)

Within fifteen years, the United Nations Sustainable Development Goals set two targets relevant to investment in research:

“9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including encouraging innovation and substantially increasing the number of research and development workers per one million people and public and private research and development spending”. The UN Sustainable Development Solutions Network (SDSN) recommends to develop an indicator on technology sharing and diffusion to monitor implementation of this goal.

“9.b Support domestic technology development, research and innovation in developing countries including by ensuring a conducive policy environment for inter alia industrial diversification and value addition to commodities”. The SDSN recommends to develop an indicator on the creation of or subscription to the Technology Bank aimed at stimulating international technology transfer. They also recommend Gross Domestic Expenditure on R&D as share of GDP as an indicator for both targets.

Conclusion

Pooling current funding and attracting new public and private investments for NMP in the EU and CELAC is feasible and a prerequisite for deployment of these technologies for health, energy and water in Latin America. These should in the long term contribute to the UN Sustainable Development Goals.

Further reading

This fact sheet is based on literature and experts participation in interviews and events reviewed in the NMP-DeLA final roadmap, including all the original references. This can be downloaded from www.nmp-dela.eu