

## • Sustainability science in Mexico: taking the plunge

Abdelfettah Sifeddine,  
IRD, Mexico City, Mexico  
Olivier Dangles,  
IRD, Marseille, France

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### Background

A country with a population of 129 million, bordered by arid deserts in the north which account for 40% of national territory, along with flooded zones and flood plains in the south-east, a swathe of Caribbean coast under threat from Sargassum seaweed, acute urban/rural inequalities and serious migration and security issues, Mexico faces many challenges in its efforts to achieve social justice and a decent standard of living. In order to face up to these challenges, the country must balance the need to protect its natural resources with the necessity of tackling its profound inequalities. Government efforts in this direction have afforded particular prominence to approaches based on sustainability science. This represents an opportunity for IRD teams to co-develop research and training projects that are ambitious, interdisciplinary and transcend sectoral boundaries.

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#### Contact

abdel.sifeddine@ird.fr

#### Further reading

<https://sostenibilidad.posgrado.unam.mx>

## Mexico and the sustainable development goals

Currently ranked 74<sup>th</sup> out of 163 in terms of progress towards achieving the sustainable development goals (SDGs), Mexico is faced with many environmental, social and economic challenges, particularly with regard to SDGs 2, 3, 6, 8, 9, 10, 14, 15 and 16 and, to a lesser extent, SDGs 1, 7, 11, 12, 13 and 17 (see graphic). The situation is improving (albeit modestly) for SDG 11, but the conservation of biodiversity

and achieving peace and justice remain the country's most pressing challenges. Against this backdrop, over the past five years Mexico has developed a programme focusing on well-being, the fight to end corruption and poverty, access to education and health and food security. With these goals in mind, the National Council of Science and Technology (CONACYT) has launched 10 strategic programmes at the national level (PRONACES) designed to organise and steer scientific research into these matters of national importance.



Dashboard showing progress and trends in SDG measures in Mexico  
<https://dashboards.sdgindex.org/profiles/mexico>.

Within the purview of sustainability science, the goal is to foster collaborations between researchers and social partners from the public and private sectors, in order to establish short (1 year), medium (3 years) and long-term (5-6 years) projects capable of delivering concrete, integrated solutions to Mexico's economic, social and environmental problems. Many Mexican research institutions have adopted this scientific strategy as a pillar of their research and training programmes.

### The National Autonomous University of Mexico: a sustainability science pioneer

Among these institutions, the National Autonomous University of Mexico (UNAM), a strategic IRD partner since 1991, has established a National Laboratory for Sustainability Science (an offshoot of the Ecological Institute), an academic intermediary championing a process of knowledge production which brings together academics, public-sector decision-makers and a variety of civil society organisations. UNAM has also established a sustainability science doctoral school, a grouping of 11 research institutes and doctoral schools. Its primary objective is to champion innovative academic perspectives, tackling the need to train the future professionals who will shape Mexico's sustainable development. This is the first UNAM programme to formally combine natural and social sciences, engineering and town planning. The aim of this doctoral school is to train experts with a solid understanding of the conceptual and methodological dimensions of sustainability science, capable of developing new solutions, with a

transdisciplinary angle, to problems which currently represent major obstacles to sustainable development. The school has its own ethics committee, an autonomous collegiate body which is independent of the university authorities and is charged with: 1) monitoring and maintaining equality, honesty and academic and scientific integrity; 2) guaranteeing safety, respect and protection for all persons involved in research; 3) ensuring that best practices are followed; and 4) resolving ethical problems arising from relations between members of the post-doctoral community. In this spirit, IRD's involvement with the Eldorado international joint laboratory (devoted to the links between biodiversity and new diseases; IRD-UNAM) is aimed at establishing an interdisciplinary doctoral school devoted to sustainable livestock farming, adopting the One Health approach. This future doctoral school, currently focused on master's level programmes, is also backed by the Universities of Montpellier and Lyon, the National Autonomous University of Yucatán and the University of Nottingham.

### IRD representatives as facilitators

IRD representatives - by virtue of their detailed knowledge of their host countries (not least their regular contacts with partner research institutions and universities, development agencies and civil society), as well as their capacity to think beyond disciplinary boundaries and their contacts with funding agencies - are uniquely well-placed to create connections between "discipline-determined" projects in order to achieve a more regionalised approach to sustainability science, whose challenges, more often than not,

transcend national borders. IRD representatives in Mexico, in partnership with UNAM, have been involved with numerous projects spanning the Latin America-Caribbean region: co-construction of a One Health master's programme in Cuba with the help of a Solidarity Grant for Innovative Projects (FSPI) from the French Ministry for Europe and Foreign Affairs; collaboration with the One Health university forum and the climate change team based at the University of Quisqueya (Haiti); support for the programmes launched by the VP for Sustainability Science at the University of Costa Rica, in collaboration with UMR Urmis and Université Côte d'Azur; another project to found a sustainability science doctoral school by means of a twinning arrangement between UNAM and the Papal University of Ecuador, with support from LMI BIO-INCA (Biodiversity and sustainable agriculture in the Northern Andes). Through actions such as these, IRD representatives are helping to plot the future of sustainability, in a thematically and geographically-targeted manner

which takes full account of the requirements of decision-makers as well as broader societal accountability (by means of research impact evaluations).

In Mexico, the community of actors united under the banner of the Eldorado project act as an anchor in the South for the global One Health knowledge community, committed to developing more collaborative and more inclusive working methods hand-in-hand with Mexican partners. Here again, IRD representatives have a key role to play in interdisciplinary scientific coordination, the organisation of site visits with researchers from multiple disciplines as well as non-academic actors (for example in the Yucatán region, in the case of LMI Eldorado), and indeed the coordination of One Health scientific and strategic steering committees including representatives of high-level partners (the Mexican Agency for International Cooperation, the Secretariat for the environment and natural resources, CONACYT, the state authorities in Yucatán, Campeche and Quintana Roo).

## KEY POINTS

**In order to build and implement sustainable solutions to the country's economic, social and environmental problems, for several years Mexico has been promoting the development of sustainability science. Mexico now has a national research institute devoted to sustainability, as well as a doctoral school issuing master's degrees and doctorates in sustainability science. There is high-level political support for One Health research projects, and efforts to establish a multi-actor platform on a territorial scale. Working to support this win-win dynamic, IRD teams are contributing their own scientific expertise in the field of One Health, while also learning from their partners on how to put sustainability science into practice.**

# SUSTAINABILITY SCIENCE

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