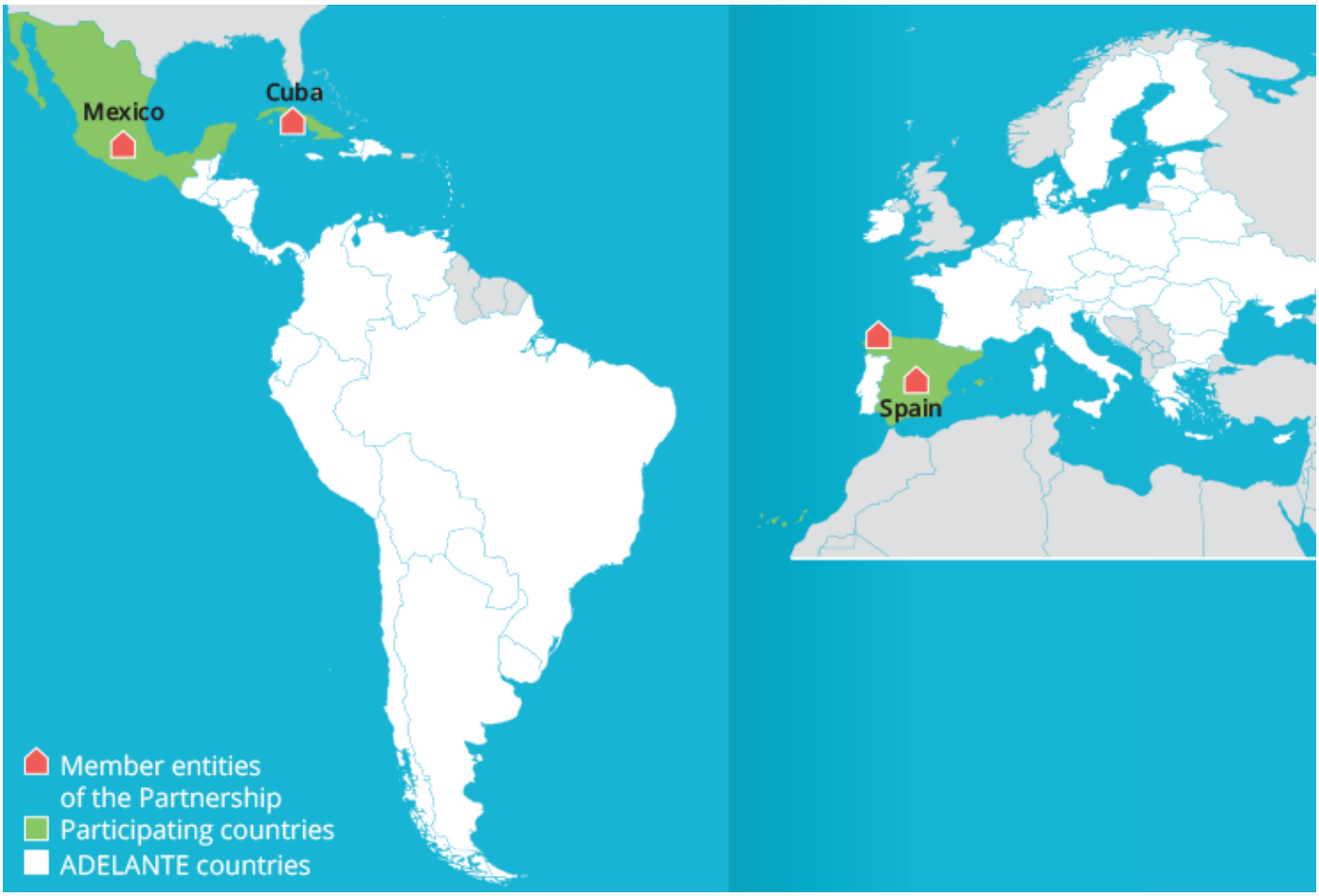
INFANTIX - Tools for early detection and rehabilitation of neurodevelopmental problems in infants

PARTNERSHIP



Background

CNEURO registered INFANTIX in Cuba to perform hearing loss screening with Auditory Evoked Potential (2019) and Visual Evoked Potential (2020), and developed an Otoacoustic Emission Device which is currently in the approval process, and can therefore provide this technology.

CNEURO and MPDL have been collaborating since the beginning of the COVID-19 pandemic on a prevention and monitoring programme for groups vulnerable to the virus. In April 2020, the project “Increasing prevention and response measures against COVID-19 in Cuba” was implemented, with a grant of EUR

1,200,000 from the European Union to provide protective equipment to personnel involved in responding to the pandemic. In addition, the project “Support for research and innovation to improve the medical response to the COVID-19 epidemic in Cuba” was approved, with a grant of EUR 516,603 from the Spanish Agency for International Development Cooperation and ICNEURONIC SL, which focused on improving diagnostic and treatment technology in intensive care units for COVID-19 patients and reducing mortality risks. Based on its knowledge of CNEURO's role in the analysis and implementation of health policies in Cuba, MPDL highlighted the importance of collaborating with SERGAS on this project to exchange information on biological risk criteria and different therapeutic programmes relevant to both contexts.

The collaboration between CNEURO and the INB of Querétaro dates back many years. Researchers from both centres have published relevant findings on brain analysis methods in prestigious international journals. INB is a member of the Global Brain Consortium, co-coordinated by CNEURO and the Montreal Neurological Institute. Recently, the workshop ‘Advances in behavioural and neuroimaging techniques for the study of neurodevelopment’ was held between CNEURO, the University of Montreal and INB, as part of the project ‘Early Electrophysiological Predictors of Neurodevelopmental Disorders', a CAD 7,000 grant funded by the Ministry of International Relations and La Francophonie. The INB can lend its expertise in the early detection and rehabilitation of attention deficits and the longitudinal follow-up of children with neurological damage.

Entities and roles

BENEFICIARY ENTITIES

Instituto de Neurobiología de Querétaro (UNAM)

Mexico

FIRST PROVIDER ENTITIES

BioCubaFarma - Centro de Neurociencias de Cuba

Cuba

SECOND PROVIDER ENTITIES

Movimiento Por la Paz, el Desarme y la Libertad

Spain

Servizo Galego de Saúde

Spain

Development challenges

Neurodevelopmental disorders (ND) represent a major challenge for health systems around the world, with a significant economic and social impact. Cases of children at risk of ND are often detected only at the beginning of school, without having been able to benefit from early stimulation strategies.

This situation is even more critical in developing countries in Latin America, as access to first class medical technology is very limited and there is a lack of financial resources and specialised personnel to implement early detection programmes. Neonatal hearing and vision screening is one of the most widely used techniques to detect children at risk of hearing or vision impairment, and to facilitate an early and reliable diagnosis of these disabilities. Despite the evident impact of these disabilities on cognitive development and quality of life later on, the implementation of comprehensive programmes is still very limited.

The introduction of strategies for early stimulation / rehabilitation of children with disabilities is beneficial not only in terms of health, but also on a psycho-social level, as it promotes the successful integration of the child into the environment and enhances their personal autonomy as rights holders, in line with the Global Strategy for Women's, Children's and Adolescents' Health (2016-2030).

This project aims to provide a space to create and exchange knowledge, and adopt and enhance innovative methodologies and tools developed by the collaborating institutions for the early detection and rehabilitation of ND in infants.

PROJECT

This Triangular Cooperation project aims to create opportunities for knowledge exchange and professional training for the medical staff of the participating institutions in relation to the early detection and rehabilitation of ND in children, using tested tools and good practices in the participating countries.

Triangular approach

CNEURO provides a portable system for universal neonatal screening of hearing and vision disorders INFANTIX; capturing Otoacoustic Emissions, automated Brainstem Auditory Evoked Potentials (BAEPs), Auditory Steady-State Response (ASSR) and automated Visual Evoked Potentials (VEP). This intelligent system takes into account the signal quality and calculates online statistics.

SERGAS provides a prevention model for children with or at risk of developmental disorders (Primary prevention: universal, development of standards and rights in the promotion and protection of child health; Secondary prevention: protocols for diagnosis / early detection of children at risk and programmes aimed at the identified groups; and Tertiary prevention: multidisciplinary strategies in the event of a child born with a disability or the identification of a developmental disorder).

MPDL lends its expertise in linkages between companies, institutions and civil society to protect the universal right to health.

INB and a Mexican paediatric hospital will receive two INFANTIX devices and training in their use, laying the groundwork for implementing neonatal screening for hearing and vision loss in Mexico.

INB will provide training to Cuban specialists in the neurological rehabilitation method for the early prevention of neurological and cognitive effects in infants with brain damage. In addition, INB will provide the Sustained Attention Response Test for children aged 3 to 8 months old, as well as an Early Stimulation Programme (for children aged 3 to 8 months old) for these processes for caregivers. The Sustained Attention Response Test includes a visual scale and an auditory scale. It enables characterisation of the level of attentional development (deficient, normal, accelerated) between 1 and 8 months of age. An Early Stimulation Programme is a treatment to stimulate brain networks responsible for attentional processes and reduce attentional deficits present in various ND and/or potentially prevent ADHD.

CNEURO will benefit from training in the three methodologies provided by INB.

All institutions will benefit from the exchange of working models currently in use in the three countries, and from fostering collaboration and the active search for new sources of funding.

Sectoral approach - Contribution to the 2030 Agenda

PRIMARY SDG

Goal 3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

SECONDARY SDG

Goal 4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and preprimary education so that they are ready for primary education

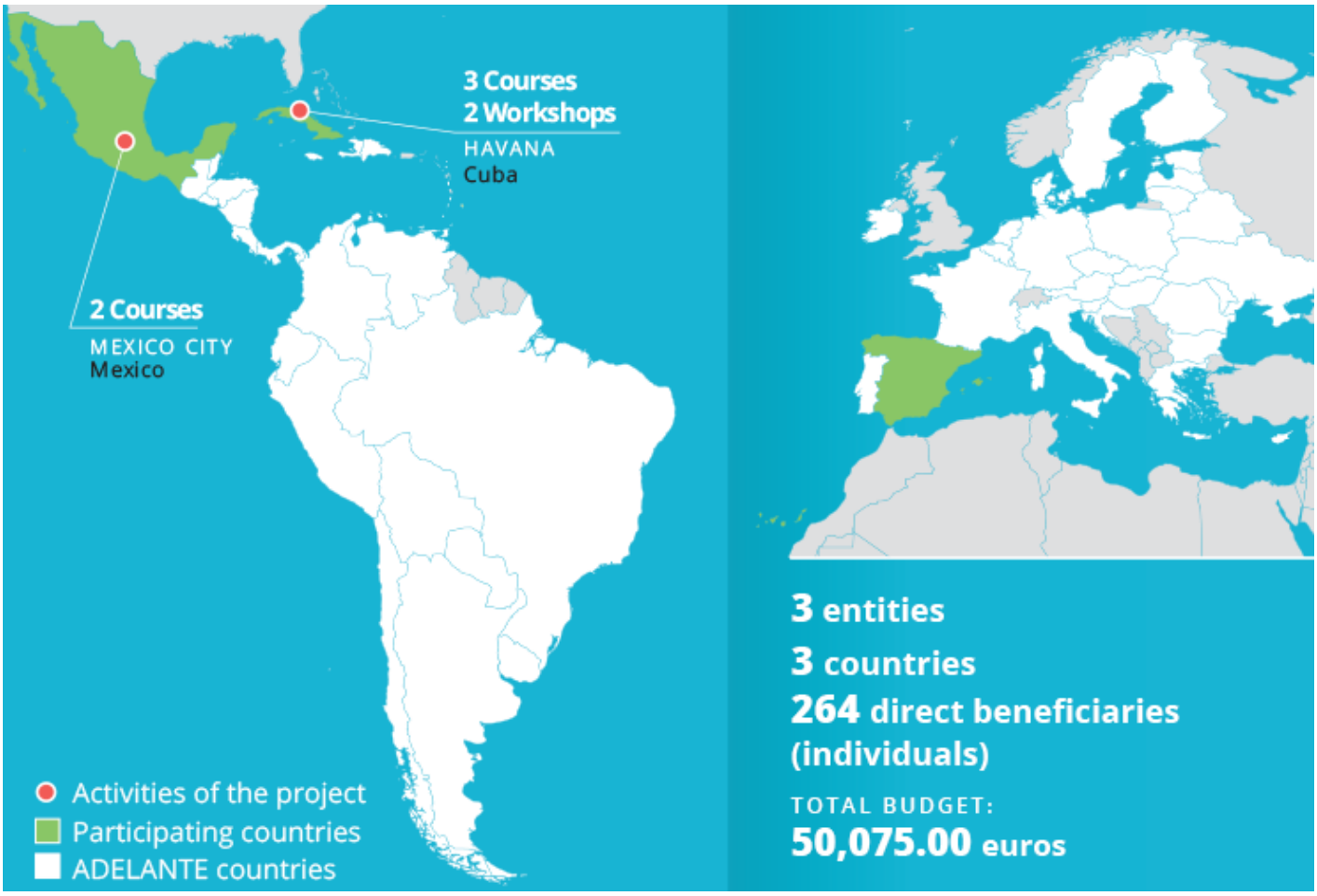
Goal 4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy

ADELANTE SDG

Goal 10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

Goal 17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism

Territorial approach



Intervention methodology

This project is based on the following methodology: 1) Identify policies and working models in place in the three Partnership countries and training topics of mutual interest to the participating institutions; 2) Provide specialists from Mexican institutions with access to and training in the use of the INFANTIX system, technology produced at CNEURO for universal neonatal auditory/visual screening; 3) Provide specialists from Cuban institutions with access to and training in the use of the Sustained Attention Response Test and Early Stimulation Programme, developed by INB for the early detection of attention deficits and the stimulation of the brain networks involved, respectively; 4) Provide specialists from Cuban institutions with training in the application of the neuro-rehabilitation methodology implemented by INB for the early prevention of neurological and cognitive effects in infants with brain damage; and 5) Design a project aimed at extending the current collaboration and evaluating available national and international funding alternatives.

Direct beneficiaries (individuals)

According to Rule 9 of the Guidelines for Applicants: all persons participating in the activities of the Initiative.

The direct beneficiaries of the project are researchers and specialists from the INB and the Hospital de Especialidades del Niño y la Mujer de Querétaro (Children's and Women's Hospital of Querétaro).

In addition, all of the children receiving treatment in these two Mexican institutions will be direct beneficiaries, along with their caregivers and families.

Budget

EU contribution: 40,075.00 €
Co-financing - Triangular Cooperation Partnership: 10,000.00 €
Total budget: 50,075.00 €