De Quadros wins the BBVA Foundation Frontiers of Knowledge Award in Development Cooperation for leading efforts to eradicate smallpox and to eliminate polio and measles from the American continent

- The jury singled out the role of the Brazilian researcher and epidemiologist in a string of vaccination successes that stand among "the prime achievements of medicine"

- His work has changed the global health paradigm by convincing governments of the economic benefits of vaccination and getting them to commit funds and resources to immunization campaigns

- The BBVA Foundation Frontiers of Knowledge Awards recognize the role of science and cultural creation as levers of society's progress and wellbeing. Their eight categories span the main scientific, technological, social and economic areas and challenges of our times

Madrid, February 28, 2012.- The BBVA Foundation Frontiers of Knowledge Award in the Development Cooperation category goes in this fourth edition to the Brazilian epidemiologist Ciro de Quadros (Rio Pardo, 1940) for "leading the efforts to eliminate polio and measles from the western hemisphere and being one of the most important scientists in the eradication of smallpox around the world. These accomplishments, particularly the eradication of one of the most deadly enemies of mankind, represent one of the prime achievements of medicine," in the words of the jury's citation.

Jury chairman Pedro Alonso stressed that "this is not an award for lifetime achievement but for a knowledge-based contribution of immeasurable impact. De Quadros is a hero of global health, one of the greats. He has not only researched but has also led and inspired the fight against infectious diseases, applying knowledge to produce successes comparable to the discovery of penicillin."

A delighted De Quadros received the news of the award during a preparatory meeting in Mexico City to identify milestones for the Decade of Vaccines. "The ultimate goal is for every citizen to enjoy access to vaccine technology,"

explained the new laureate. And he is quietly confident, in the case of polio, that the disease can be eradicated before the current end-of-decade target.

Educated and trained in his native Brazil, De Quadros quickly rose to prominence in his chosen field and was recruited by the World Health Organization to work on its smallpox eradication program in Africa. From there he transferred to the Pan American Health Organization, where he headed the successful drive to eliminate poliomyelitis and measles from the American continent. Since 2003, he has held the post of Executive Vice-President with the Washington-based Sabine Vaccine Institute.

He describes his role in eradicating smallpox as a life-defining experience: "What you feel at being part of conquering a disease that has caused millions of deaths is just indescribable. There is this sense of a mission accomplished but also the determination to continue working for the betterment of global health. That is what has given me the energy to keep going, and here I am, as active at 72 as someone of the age of 40."

"Through his work with UN agencies, governments and academic," the citation continues, "Dr. de Quadros had changed the paradigm for development coordination in public health."

This paradigm shift, as the jury terms it, rested on securing government ownership of immunization campaigns by convincing them that the economic and welfare benefits of vaccination far outweighed the costs. De Quadros gives the following example: "A number of studies have shown that vaccinated children perform better at school than their unvaccinated peers and that the vaccinated population adds more overall to the generation of national wealth."

De Quadros, furthermore, has championed a new supply model whereby a number of countries establish joint purchasing centers in order to acquire vaccines more cheaply.

In the jury's view, "His programs have shown that introducing existing vaccines can be done in an economically sustainable way that promotes country ownership, particularly in low and middle income countries. This has facilitated an unprecedented effort against vaccine preventable diseases such as rubella, pertussis, rotavirus, pneumococcus and human papilloma virus, especially in high disease burden areas and underprivileged communities in Asia, Africa and the Americas."

Asked how he sees the future, De Quadros doesn't hesitate: "The 21st century will be known as the century of vaccines. The large number now available will be joined by others still in the study phase, including, for instance, a vaccine against stomach cancer. There are also conditions long considered chronic or degenerative that we are now discovering may be due to infectious agents amenable to vaccination."

De Quadros remains active today in research and education. "Through his work," the jury concludes, "the world is closer to achieving the millennium development goal that aims at reducing morality rates in children under five by two thirds before the year 2015."

The name of the new laureate was announced this morning in the Marqués de Salamanca Palace, Madrid headquarters of the BBVA Foundation, at an event attended by the jury chairman **Pedro Alonso,** Director of the Institute for Global Health of Barcelona, and **Rafael Pardo,** Director of the BBVA Foundation.

The BBVA Foundation established the Frontiers of Knowledge Awards in 2008 to recognize the authors of outstanding contributions and significant advances in a broad range of scientific and technological areas characteristic of our times. The quality of the nominations received, the stature of the international judges, appointed in consultation with the Spanish National Research Council (CSIC), and the excellence of the laureates in their first three editions have earned them a place among the world's foremost award families.

In the midst of a severe economic crisis which has pushed science, culture and the environment lower down the list of public priorities, the BBVA Foundation Frontiers of Knowledge Awards enter this fourth edition firm in their commitment to the individuals and teams working for a better future for people through the advancement of knowledge and its dissemination to society.

The eight categories of the BBVA Foundation Frontiers of Knowledge Awards, each carrying prize money of 400,000 euros, reflect both the knowledge map of the early 21st century and the great global challenges of the day. Hence their inclusion of two dedicated environmental categories in the form of "Climate Change" and "Ecology and Conservation Biology".

The BBVA Foundation primarily engages in the generation and diffusion of scientific knowledge and culture. This effort materializes in research projects, advanced training, lectures and publications, and a series of award families aimed at recognizing and drawing public attention to the work of scientists and creative practitioners.

Among the BBVA Foundation's areas of activity are basic sciences, biomedicine, ecology and conservation biology, the social sciences and literary and musical creation. Its initiatives mesh with the BBVA Group's strategy of fostering innovation and knowledge as development drivers and an effective means to expand our individual and collective choices.

International jury

The jury in this category was chaired by **Pedro Alonso**, Director of the Institute for Global Health of Barcelona (Spain), with **Norman Loayza**, Lead Economist in the Development Research Group of the World Bank (United States) acting as secretary. Remaining members were **Maricela Daniel**, Spanish representative of the United Nations High Commissioner for Refugees (UNHCR) (Spain); **Vicente Larraga**, Director of the Center for Biological Research at the Spanish National Research Council (CSIC); **José García Montalvo**, Professor of Economics at

Pompeu Fabra University in Barcelona (Spain) and **Francisco Pérez**, Research Director at the Valencian Economic Research Institute (Spain).

Last year's award in this category went to the **International Rice Research Institute** (IRRI) for its contribution to "reducing poverty and hunger in the world by means of rice research and farmer training," said the jury's citation.

In the second edition, the winner was the **Development Research Institute (DRI)** at New York University (United States) for "its contribution to the analysis of foreign aid provision, and its challenge to the conventional wisdom in development assistance."

Finally, the winner in the inaugural edition was the **Poverty Action Lab at Massachusetts Institute of Technology (MIT)** (United States) for promoting the use of scientific methods to assess the effectiveness of development assistance funding.

Biography

Ciro de Quadros was born in Brazil, where he first studied medicine (1966) then went on to take a master's degree in public health (1968). Before leaving medical school he joined a health center in the Brazilian Amazon and set out with his staff to bring immunization levels up to 100% in its catchment area. An ambitious goal, since in the late 1960s immunization rates in many parts of Brazil were less than 10%.

In November 1970, the World Health Organization (WHO) offered him a posting in Africa as Chief Epidemiologist on its Smallpox Eradication Program, working out of Addis Ababa (Ethiopia). The world's last ever case of the endemic disease was diagnosed in the port town of Merka, in neighboring Somalia, on October 26, 1977.

A bare seven months before, with smallpox on the point of disappearing from Ethiopia, De Quadros had returned to the continent of his birth to join the Pan American Health Organization (PAHO) as Senior Advisor on Immunization and Head of the Expanded Program on Immunization for the Americas. In March 1994, he was appointed Director of PAHO's Special Program for Vaccines and Immunization and from there moved to the post of Director of the Division of Vaccines and Immunization, where he remained from 1999 to 2002.

On arriving at PAHO, De Quadros began work on systematic vaccination campaigns against poliomyelitis. By 1981, he had set himself the goal of eradicating polio from the Americas, which many of his colleagues saw as unrealistic. He disagreed, pointing to promising data from two weekends of National Immunization Days held in Brazil. "On each of those weekends, about 20 million children under 5 years of age received a dose of oral polio vaccine," De Quadros wrote in the 1997 book *Polio*. "Cases of polio dropped dramatically from an average of over 100–200 cases per month to fewer than 20." By 1989, polio had been eliminated from Brazil.

It was this success that persuaded PAHO's director, Carlyle Guerra de Macedo, to announce the goal of eradicating polio from the Americas at a press conference in 1985. Donors to the enterprise included Rotary International, UNICEF, the Inter-American Development Bank, and the U.S. Agency for International Development, who committed the funds needed to stock up on vaccines.

Civil unrest in countries like El Salvador and Peru meant immunization workers at times feared for their lives. De Quadros accordingly called on the help of UNICEF, the Red Cross, and the Catholic Church, as well as appealing directly to the authorities and guerrilla forces. The result in El Salvador was an agreement to hold what the parties called "days of tranquility". "We organized three days of tranquility each year," De Quadros recalls, "and vaccinated nearly every child in El Salvador."

In Peru, similar negotiations with the guerrilla movement Sendero Luminoso soon broke down. Undeterred, De Quadros and his team organized a series of "mop-up" campaigns to help limit poliovirus transmission to just a few areas. They also called on the support of the media, organizing press conferences to appeal to everyone – including the guerrillas – to cooperate with vaccination efforts. By 1991, Peru had reported the last confirmed case of wild polio, and in 1994, an international commission officially declared the disease eradicated from the Americas region.

In 1999, when leading PAHO's Division of Vaccines and Immunization, De Quadros decided to follow up his successes against smallpox and polio with an all-out campaign to eradicate measles, building on the work done since 1994. In November 2002, the region was able to report having successfully interrupted transmission of the last endemic strain of measles virus.

De Quadros is Associate Adjunct Professor in the Department of International Health of the School of Hygiene and Public Health at The Johns Hopkins University and Adjunct Professor in the Department of Tropical Medicine at the George Washington University School of Medicine. He has also served as Adjunct Professor in the School of Medicine at Case Western Reserve University.

The author of over 80 papers in international journals and four books, he has an honorary doctorate from the Federal University of Medical Sciences in Porto Alegre (Rio Grande do Sul, Brazil) and a long list of distinctions including the World Health Day Award of the American Association for Public Health (1987). In 2002, the President of Mexico awarded him the title of Public Health Hero.

LAUREATE'S FIRST DECLARATIONS AND IMAGES

A video recording of the new laureate's first impressions on receiving news of the award is available from the Atlas FTP with the following name and coordinates, along with photographic images and an audio MP3 recording of the announcement event, featuring more declarations:

Server: **213.0.38.61**
Username: **agenciaatlas1**
Password: **amapola**

The name of the video is:
"CIRO DE QUADROS PREMIO FBBVA COOPERACIÓN DESARROLLO "

Award winners in remaining categories

There follows a list of laureates in the remainder of the eight categories in this fourth edition of the BBVA Foundation Frontiers of Knowledge Awards.

The BBVA Foundation Frontiers of Knowledge Award in the **Climate Change** category has gone to **Isaac Held**, an American physicist of German origin, employed at the Geophysical Fluid Dynamics Laboratory of the U.S. National Oceanic and Atmospheric Administration (NOAA), "for his fundamental and pioneering contributions to our understanding of the structure of atmospheric circulation systems and the role of water vapor – the most important greenhouse gas – in climate change," in the words of the jury's citation.

The BBVA Foundation Frontiers of Knowledge Award in the **Information and Communication Technologies (ICT)** category has been granted to U.S. electrical engineer **Carver Mead** for being "the most influential thinker and pioneer" of the silicon age, and enabling "the development of the billion-transistor processors that drive the electronic devices – for example, in laptops, tablets, smartphones, DVD players, and hybrid cars – ubiquitous in our daily lives," the citation reads.

The BBVA Foundation Frontiers of Knowledge Award in the **Basic Sciences** category is shared by Swiss astrophysicists **Michel Mayor and Didier Queloz** for "their pathbreaking development of new astronomical instruments and experimental techniques that led to the observation of planets outside the solar system." This facilitated "their discovery, in 1995, of a giant planet orbiting another star, spawning a revolution in astronomy. Today, more than five hundred exoplanets are known and the first direct measurements of some of their atmospheres have been obtained."

The BBVA Foundation Frontiers of Knowledge Award in the **Biomedicine** category has gone to **Alexander Varshavsky** of California Institute of Technology (United States) for discovering "the mechanisms involved in protein degradation and their

critical importance in biological systems". According to the jury, "Varshavsky Varshavsky showed how ubiquitin is attached to other proteins, marking them for destruction. This system is essential for normal cellular functions, ranging from the control of gene transcription, protein synthesis and DNA repair, to cell division and response to stress."

The BBVA Foundation Frontiers of Knowledge Award in the **Ecology and Conservation Biology** category has gone to U.S. ecologist and naturalist **Daniel H. Janzen** "for his pioneering work in tropical ecology and the conservation of tropical ecosystems." The work done by Janzen has moved us on from a merely descriptive knowledge of tropical ecosystems to an understanding of their function. "Daniel Janzen is a supreme example of the complete ecological scientist," in the words of the citation, "combining expertise in natural history with scientific rigor and innovative thinking."

The BBVA Foundation Frontiers of Knowledge Award in the **Contemporary Music** category has been granted to Italian composer **Salvatore Sciarrino** for "renewing the possibilities of vocal and instrumental music and for the singularity of his sound materials. The jury remarks that Sciarrino "has developed a new and unique syntax," and that "at the heart of his creations is his way of combining extreme reduction with a richness of detail. He stands out for his use of microtonality and his conscious reworking of ideas and materials from past periods and cultures."

The BBVA Foundation Frontiers of Knowledge Award in the **Economics, Finance and Management** category has been granted to British economist **Angus Deaton**, a professor at Princeton University (United States) for "his fundamental contributions to the theory of consumption, savings and the measurement of economic wellbeing," in the words of the citation. "His research," the jury adds, "applies rigorous methods to important real-world issues. Throughout his career, his work has been characterized by an attempt to understand empirical evidence in terms of a clearly articulated theoretical structure and attention to the behavior underlying the data."