



## MOBILIZING SCIENCE-BASED ENTERPRISES FOR ENERGY, WATER, AND MEDICINE IN NIGERIA (2007)

The product of a collaboration between the U.S. National Academies and the Nigerian Academy of Science, this report explores the ways in which science-based private enterprises can be created and encouraged in Nigeria and other developing countries to provide science-based products and services that government is unable to supply in a timely and sustainable manner. Focusing on three critical challenges to health and development—safe water, electrical lighting, and malaria therapy—the report identifies a sample technology to address each of these challenges

with potential for commercialization in Nigeria and Africa, and uses that sample technology to identify opportunities and barriers to creating the science-based enterprises in Nigeria. Active participation by the local business community, local and national commercial banks, producers, and scientists and engineers, interacting with international business experts, is key.

The three technologies chosen as examples of the process are solar energy, water purification, and malaria therapy. Lack of safe water and home or small business electric lighting are problems that have generated entrepreneurial solutions in other developing countries through readily accessible technologies. But in Nigeria, private companies have generally not been seen as an instrument of government policy to extend basic services to the underserved. Malaria presents a similar case. This devastating disease that kills one million people worldwide every year must be met with new drug treatments to replace those that have lost effectiveness, both to cure the disease in individuals and reduce its spread. The local private sector may be able to play a role with government and donors in a solution.

Nigeria is an appropriate test bed for an approach that combines government and donor support and resources to enable the private sector to manufacture and provide science-based solutions to basic needs problems. As an oil exporter with a positive foreign exchange balance, Nigeria has a source of funds that could be employed to test the hypothesis. Nigeria also has several excellent universities, and there are many world class scientists associated with the Nigerian Academy of Science.

Despite these and other assets, Nigeria remains in the World Bank low income category, and sixty percent of the population live below the poverty line. About two thirds of its people have no access to the electrical grid or safe water. A similar fraction of the people is without effective medicines for malaria, which is a major cause of child mortality and loss of economic productivity. In Africa, the malaria parasite is evolving resistance to most low cost and readily available drugs, and a newer effective treatment is currently too expensive for the majority of patients.



The three examples used in the study—solar energy, water purification, and effective malaria therapy—and three technologies and associated business models that may attend their solution—are examined through case studies to explore the potential of government-sponsored participation of private sector enterprises to provide basic services. A workshop was conducted for each technology, in which foreign business people who had successfully exploited the particular technology to create profitable enterprises in other developing countries collaborated with a diverse group of Nigerian business people, scientists, financial experts and others to design a business plan for a theoretical Nigerian enterprise to produce the technology. The workshop participants drew on foreign experience, while taking into account the social, economic, and cultural environment of Nigeria. Information from the three workshops, one for each technology, constitutes the “data” used to evaluate the hypothesis that such enterprises can be successful and effective in Nigeria.



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### **For More Information**

Copies of *Mobilizing Science-based Enterprises for Energy, Water, and Medicine in Nigeria* are available from the National Academy Press; call (800)624-6242 or (202)334-3313 (in the Washington metropolitan area), or visit the NAP website at [www.nap.edu](http://www.nap.edu). For more information on the project, contact Dr. Michael Greene ([mgreene@nas.edu](mailto:mgreene@nas.edu)) or visit the Policy and Global Affairs website at [www.nationalacademies.org/pga](http://www.nationalacademies.org/pga).