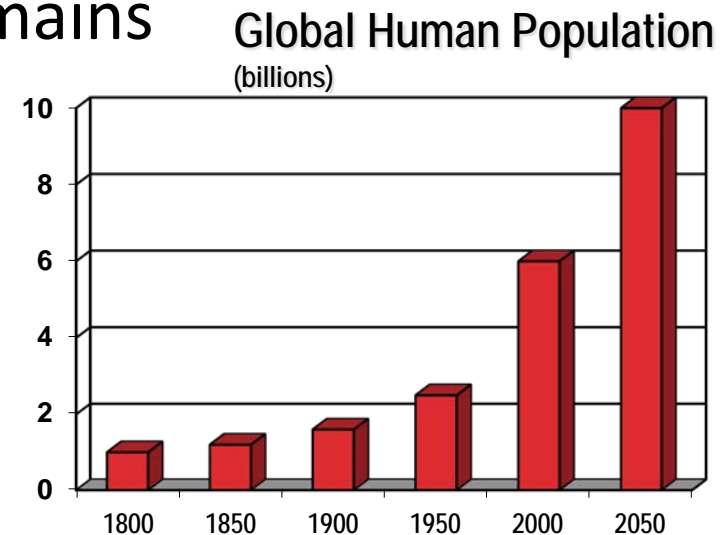




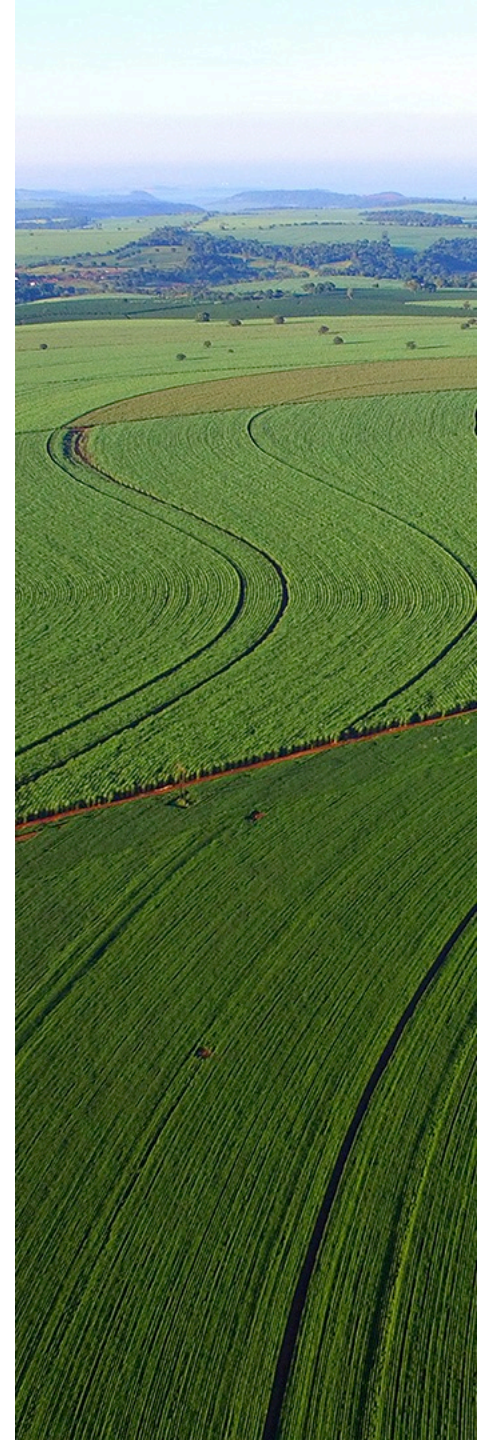
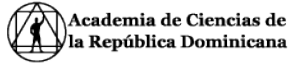
Food and Nutrition Security: The Americas

The Global Challenge

- Global population is projected to increase by about 30% between now and 2050
- Global food demand is projected to increase by as much as 70% between now and 2050
- Environmental degradation remains a major threat.
 - Deforestation
 - Loss of soils
 - Water
 - Climate change



Inter-American Network of Academies of Sciences (IANAS)



- 22 Country assessments
- Regional assessment for the Caribbean
- 230 authors
- PDF free at IANAS.org
- Stand alone Summary document that collects key messages

The Inter-American Network of Academies of Sciences (IANAS), is a regional network of Academies of Sciences created to support cooperation in strengthening science and technology as tools for advancing research and development, prosperity and equity in the Americas. IANAS is a regional member of the Inter-Academy Partnership (IAP).

North America
 The Royal Society of Canada, The Academies of Arts, Humanities and Sciences of Canada
 The National Academies of Sciences, Engineering, and Medicine
 Mexican Academy of Sciences

Central America and the Caribbean
 Cuban Academy of Sciences
 Academy of Sciences of the Dominican Republic
 Academy of Medical, Physical and Natural Sciences of Guatemala
 National Academy of Sciences of Costa Rica
 Nicaraguan Academy of Sciences
 Panamanian Association for the Advancement of Science
 National Academy of Sciences of Honduras

South America
 Academy of Physical, Mathematical and Natural Sciences of Venezuela
 Colombian Academy of Exact, Physical and Natural Sciences
 Brazilian Academy of Sciences
 National Academy of Sciences of Peru
 National Academy of Sciences of Bolivia
 Chilean Academy of Sciences
 National Academy of Exact, Physical and Natural Sciences of Argentina
 National Academy of Sciences, Argentina
 The National Academy of Sciences of Uruguay
 Academy of Sciences of Ecuador

Regional Members
 Latin American Academy of Sciences
 Caribbean Academy of Sciences
 Caribbean Scientific Union

The Inter-American Network of Academies of Sciences
 Academia Mexicana de Ciencias
 Calle Chapultepec, 529
 P.O. Box 70, Colonia Nacional
 México, CDMX, México
 Phone: +52 (55) 5203 5000
 Fax: +52 (55) 5203 5000

Free public access of this book
 is available and possible at
www.ianas.org

ISBN: 978-92-809-1073-3

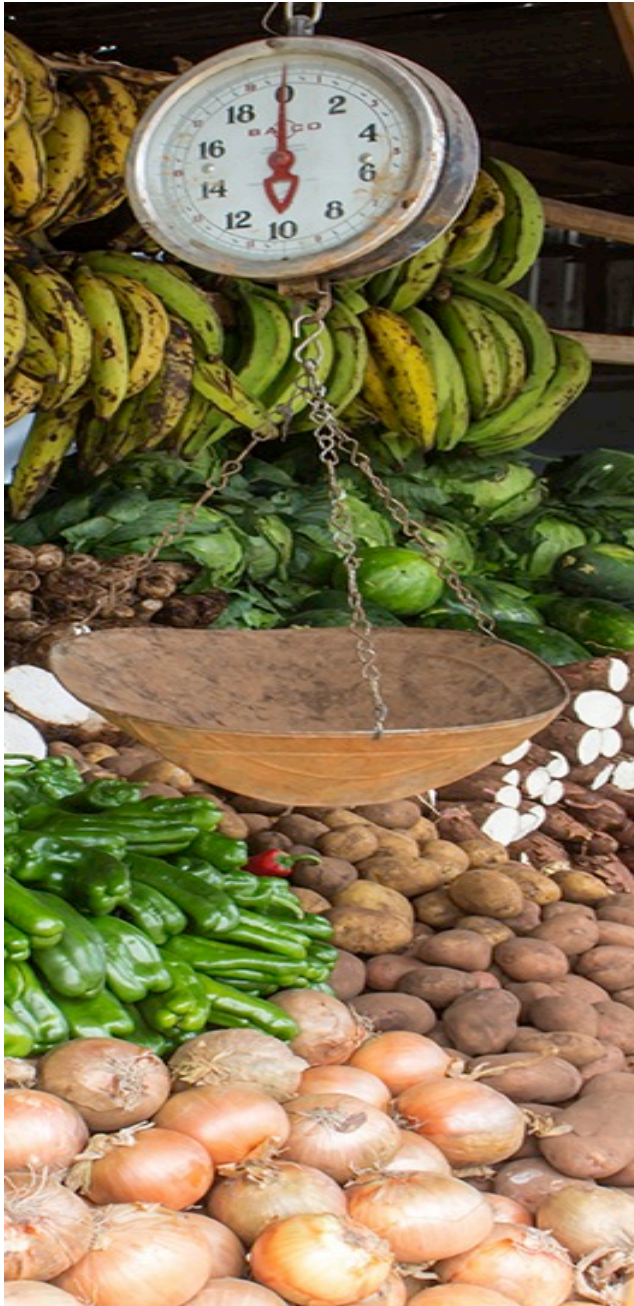
Challenges and Opportunities for Food and Nutrition Security in the Americas
The View of the Academies of Sciences

IANAS regional report
 November 2017



Federal Ministry of Education and Research | IANAS | Leopoldina | iap





Coordinators- Brazil

Evaldo Ferreira Vilela and Elibio L. Rech Filho

Participants- Brazil

Geraldo Bueno Martha Junior, Eliseu Roberto de Andrade Alves, Mauricio Antônio Lopes, Élcio Perpétuo Guimarães, Paulo Renato Cabral, Cleber Oliveira Soares, Grácia Maria Soares Rosinha, Antônio Márcio Buainain, Marilia Regini Nutti and Geraldo Magela Callegaro

Production Dimension

- Three Key elements

- Technology

- 150 year history of technological advance from irrigation to the steel plow to biotech to precision agriculture to sensors.
 - But rate of agricultural yield growth is slowing, in part owing to declining research investment.

- Environmental

- Arable land is limited and there are trade offs between agriculture and uses that have a higher economic value.
 - Climate change – Ag is a major GHG producer and is also strongly affected by climate.
 - Growing pressure on water resources constitute a major challenge and must be met with improved management.

- Governance

- Research and education
 - Safety and regulation
 - Agricultural policies ranging from subsidies and price supports, to soil conservation policies to weather forecasting to trade policies



Conclusions

- Science and technology have played a key role in feeding a rapidly growing human population.
- The food-water-climate system is a strongly interacting system with multiple feed back loops
 - Link between deforestation and agriculture
 - Link between water management, irrigation and food yields per unit arable land
 - Expansion of pests and diseases with climate change
- Time lags are important and may serve to destabilize the system
- Role of policy and international cooperation is crucial