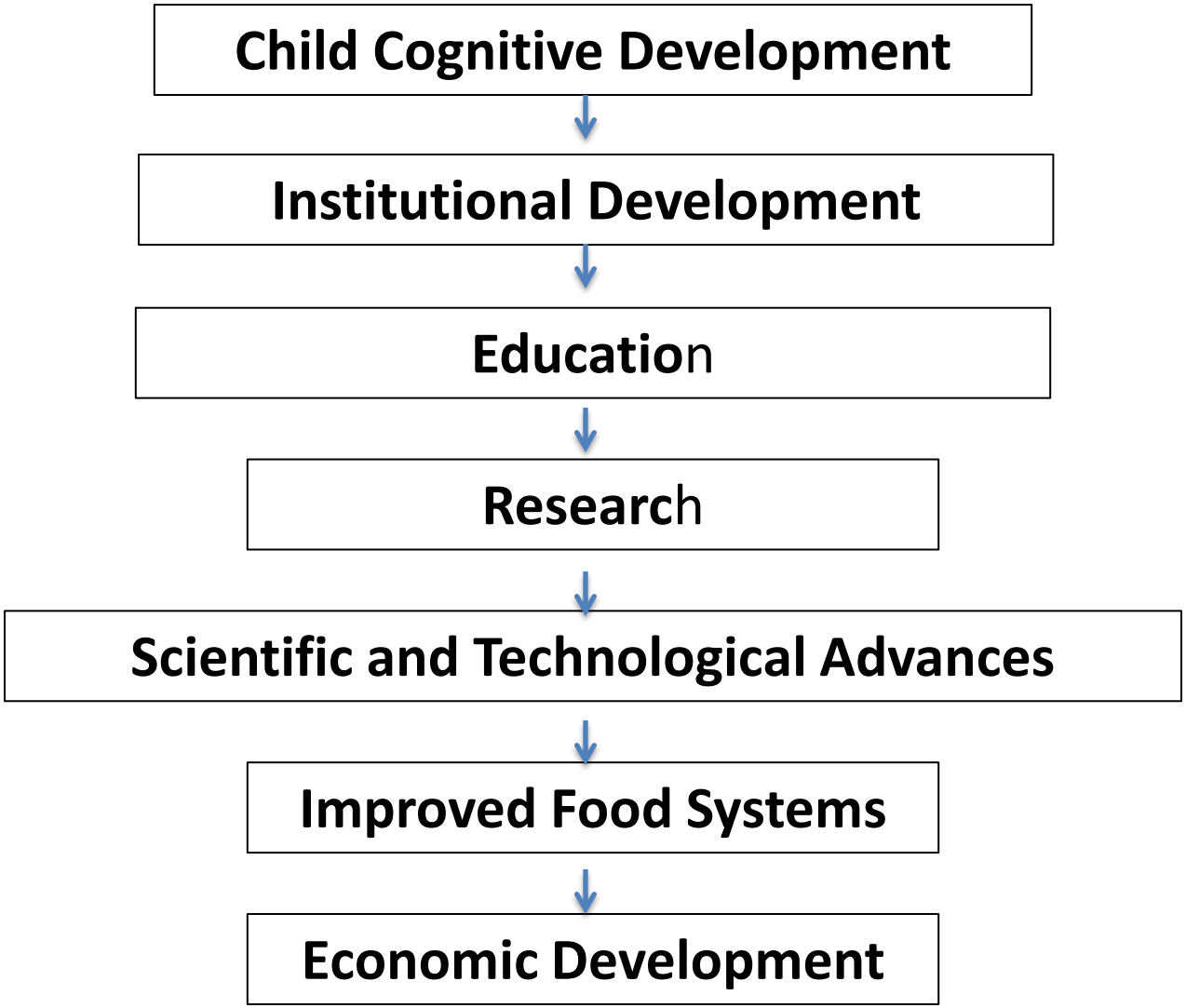
Sustainability Considerations for the Future of Animal Agriculture Science Research: Higher Education and Human Capital

Montague Demment
Anne-Claire Hervy
Association of Public and Land-grant Universities


Child Cognitive Development
Institutional Development
Education
Research
Scientific and Technological Advances
Improved Food Systems
Economic Development

Africa Rising

- **Regional GDP Growth**: Sub-Saharan Africa has led in percentage growth of GDP last year.
- **National GDP Growth**: Over the past decade six of the world's ten fastest-growing economies were African.
- **Africa now has a fast-growing middle class**: according to Standard Bank, around 60m Africans have an income of $3,000 a year, and 100m will in 2015.
- **Vast natural resource base:** One of its key assets is the considerable land that is available for food production both animal and crop production.

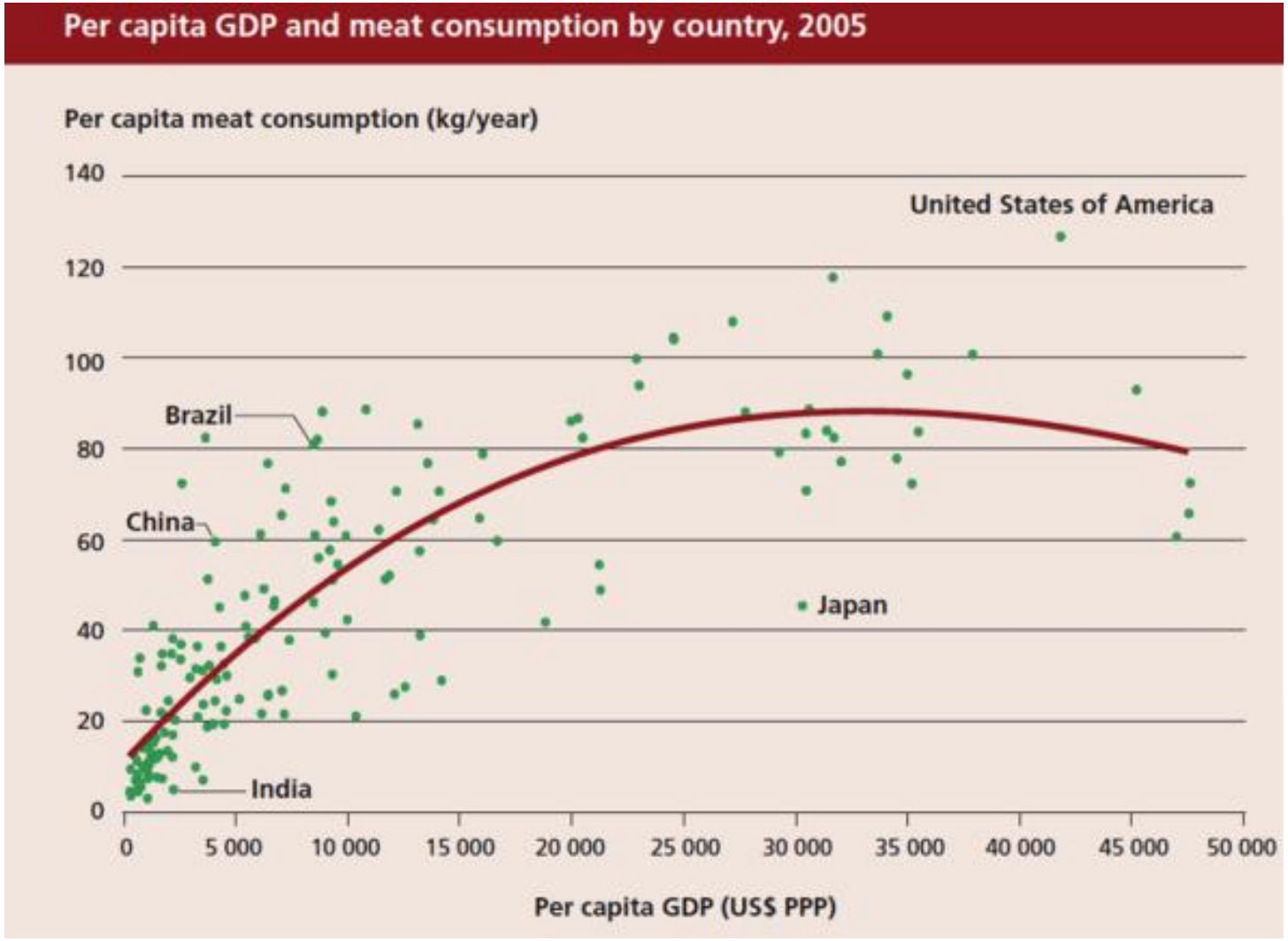
Focus on Africa

- Region that has one of the highest yield gaps
- Potential to contribute to the near doubling of food supply both plant and animal productivity needed globally
- Faces considerable challenges in how land will be used and environment will be protected
- Africa is an emerging market BUT how to ensure that the youth of Africa contribute to the solution?
- Sustainable intensification & climate change

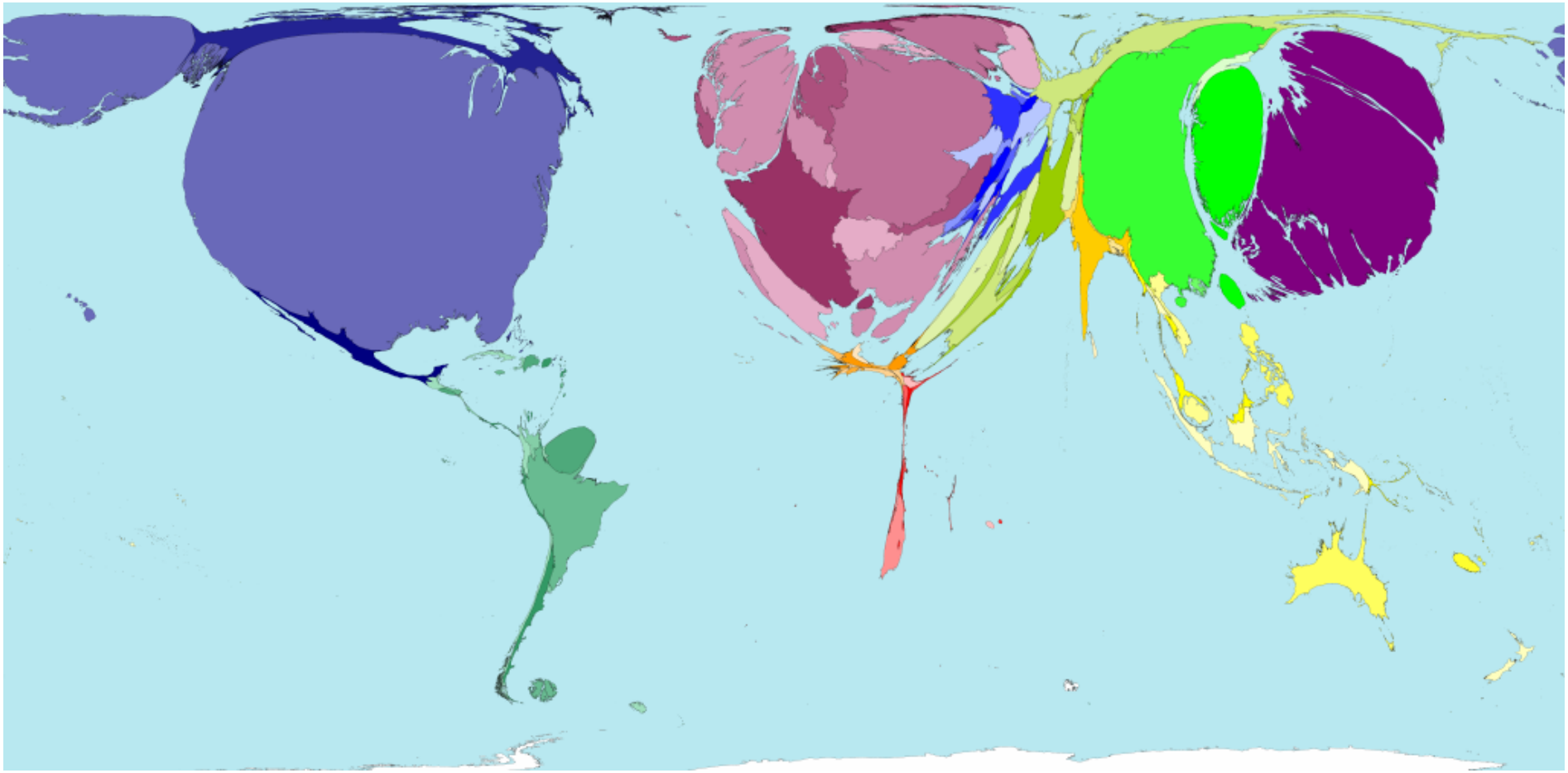




Income and Meat Consumption

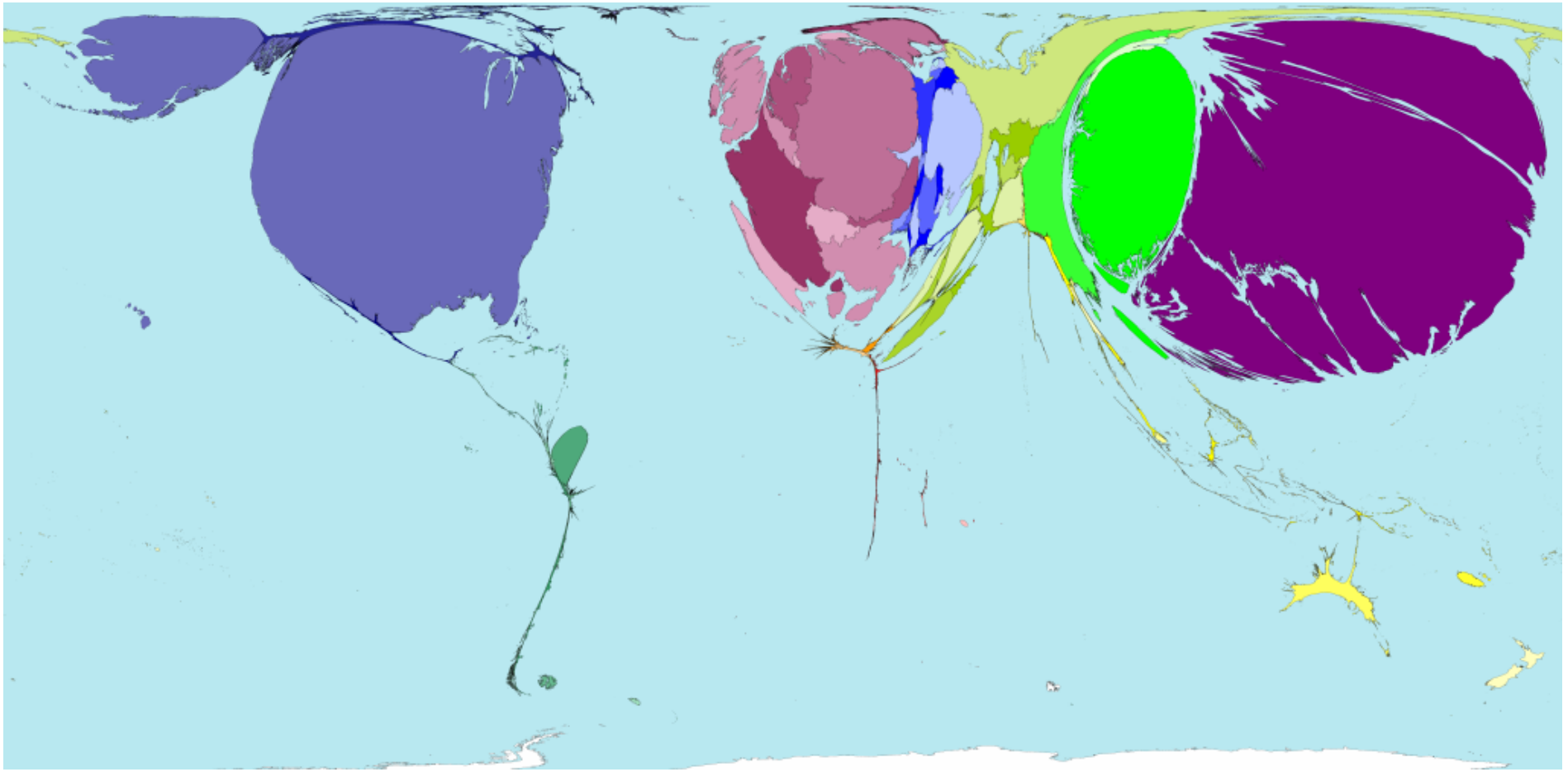


Research and Development Expenditure



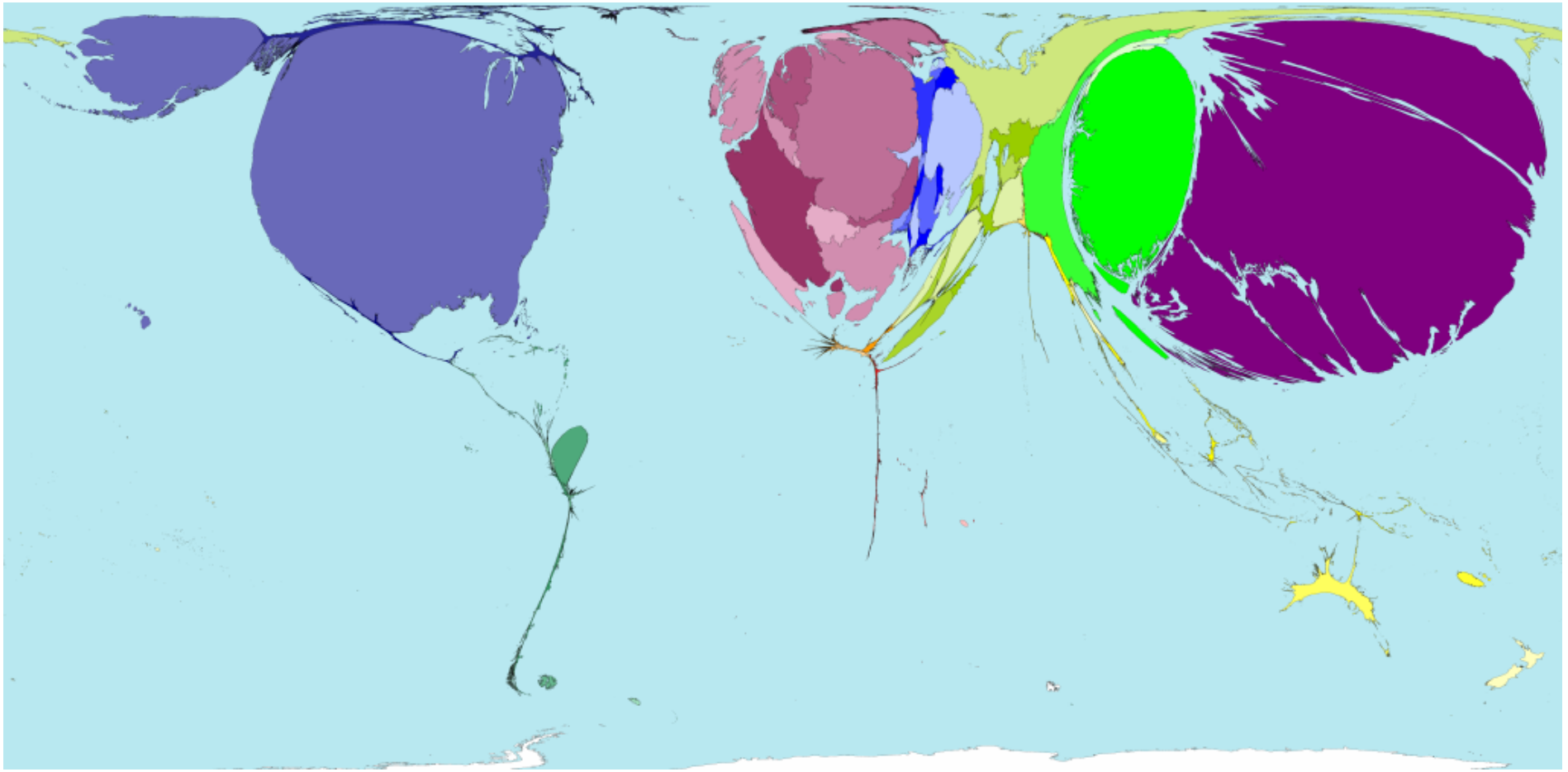
Territory size shows the proportion of worldwide research and development spending that is spent there.

Science Research



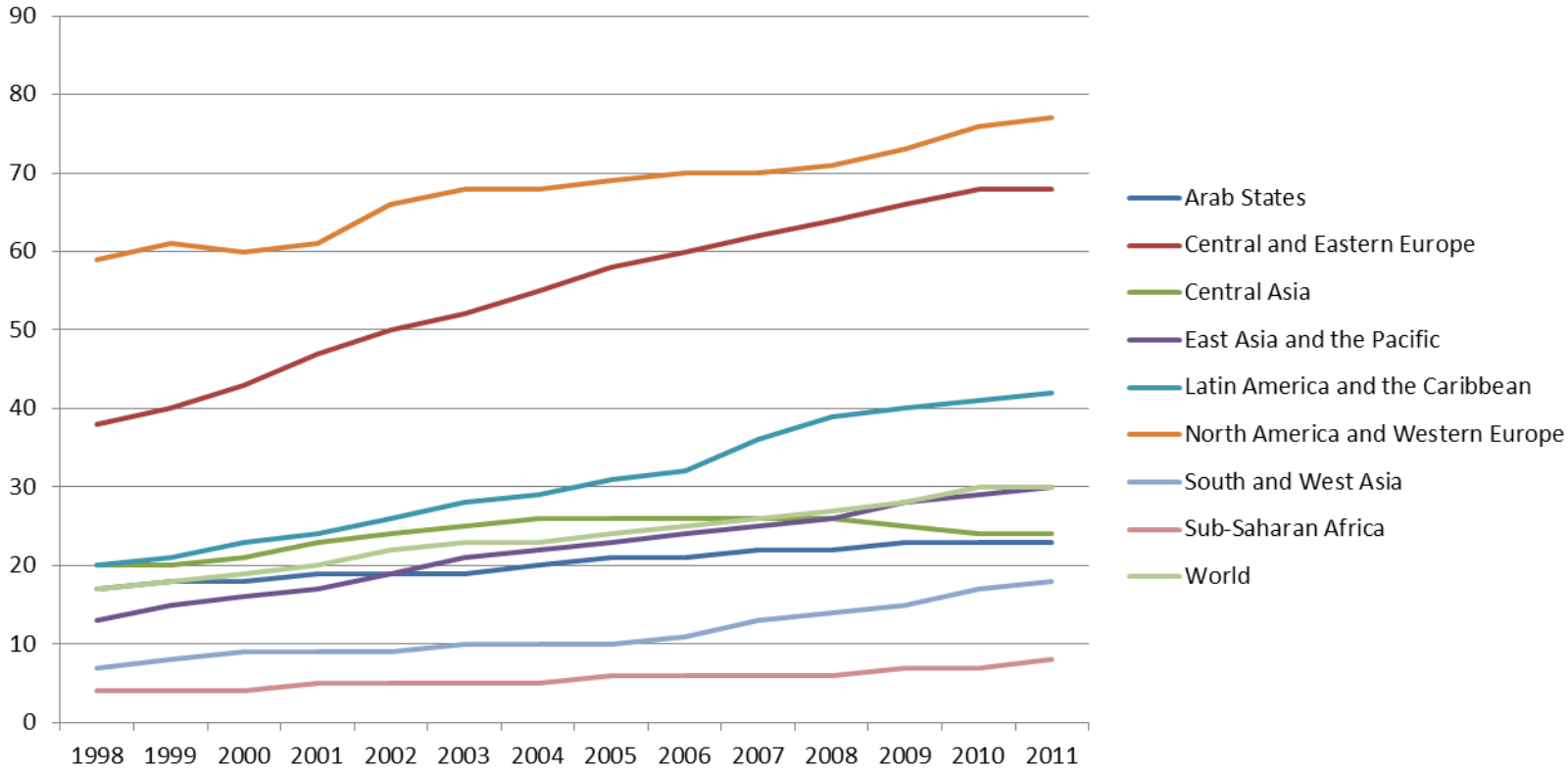
Territory size shows the proportion of all scientific papers published in 2001 written by authors living there.

Patents Granted



Territory size shows the proportion of all patents worldwide that were granted there.

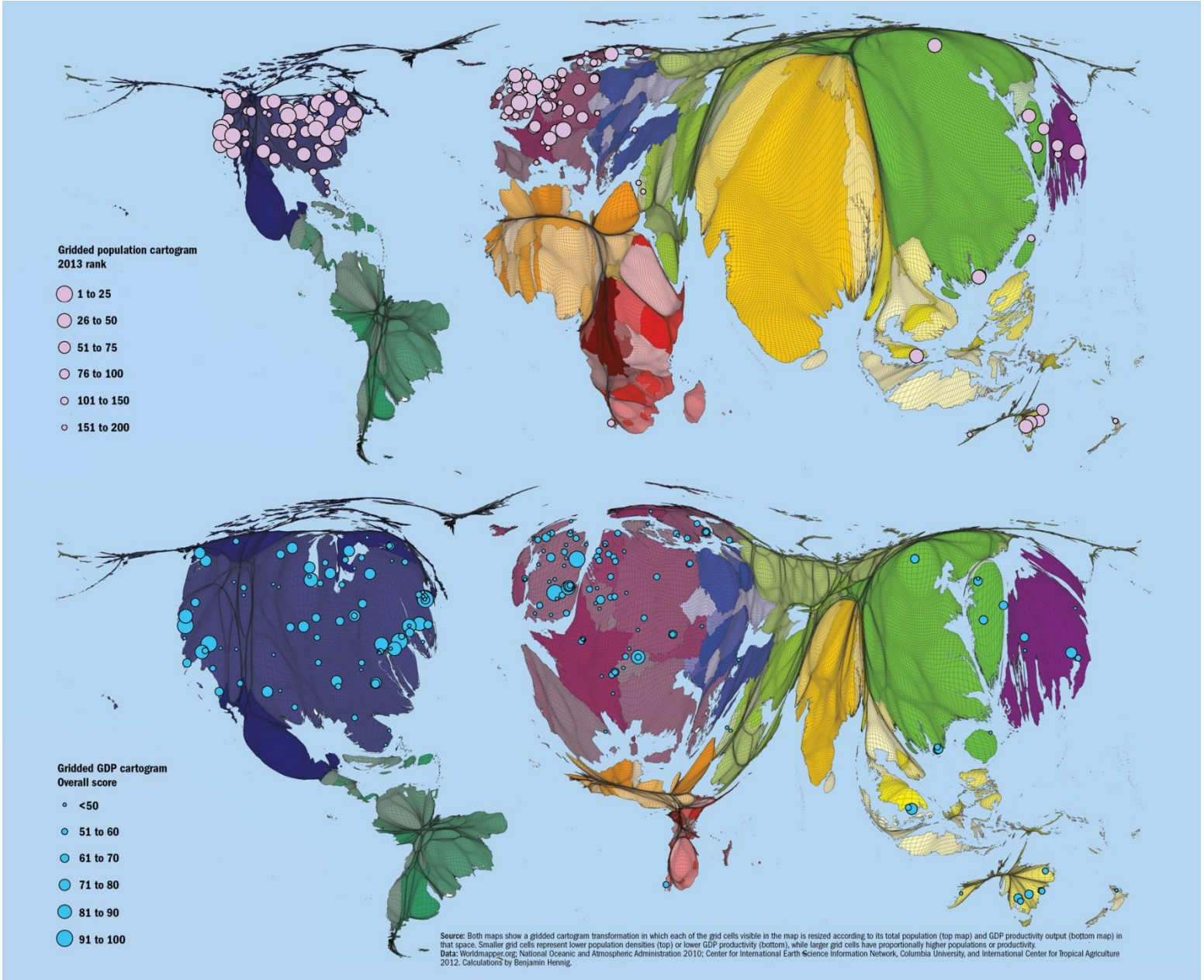
Tertiary gross enrollment ratio for different regions



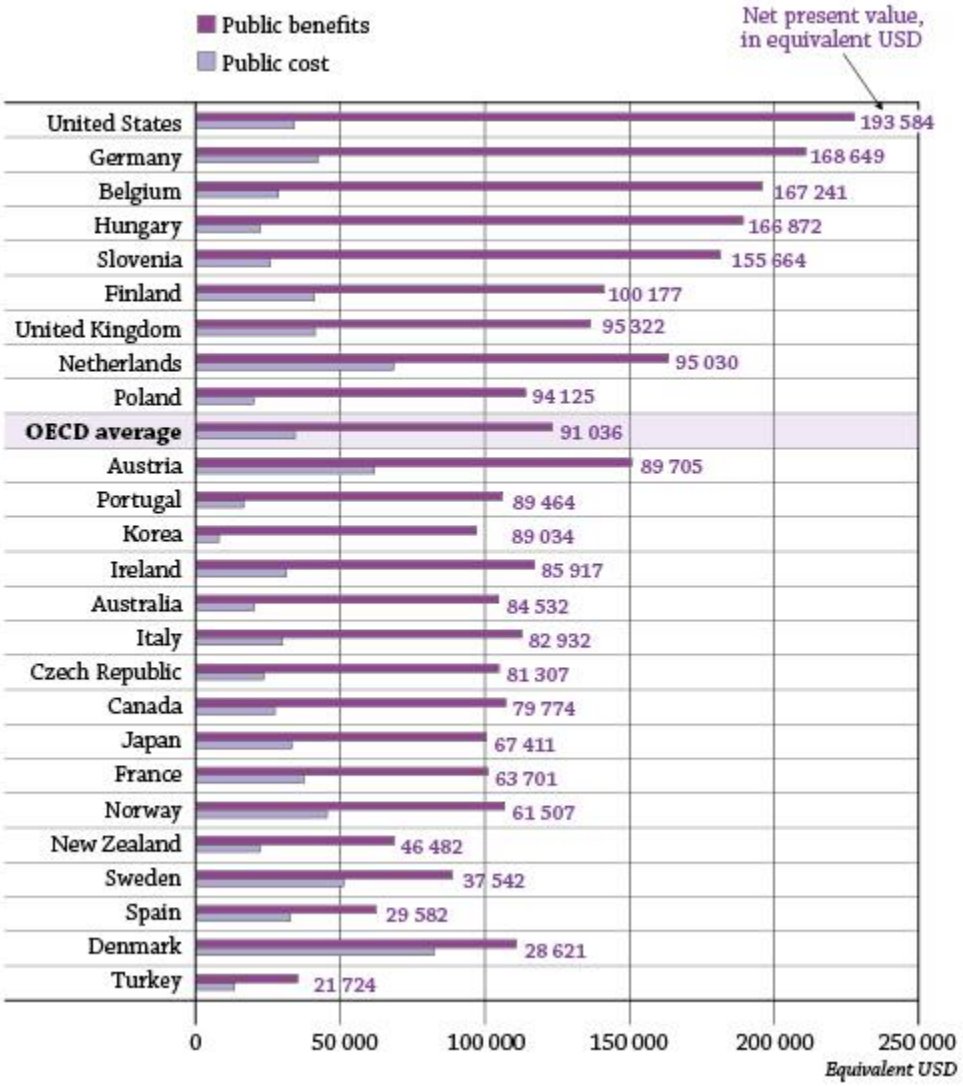
Source: UNESCO Statistics 2013

Top Ranked HEIs

http://www.viewsoftheworld.net/wp-content/uploads/2013/10/THErankings2013-14.jpg



Public costs and benefits for a man obtaining higher education (in USD, 2007 or latest available year)



Returns to Schooling by Education Level

Region	Primary	Secondary	Tertiary	GDP/pc (PPP 2005)	N
World	10.3	6.9	16.8	6,719	74
Middle East and North Africa	9.4	3.5	8.9	3,645	7
South Asia	9.6	6.3	18.4	2,626	4
Eastern and Central Europe	8.3	4.0	10.1	6,630	7
High Income Economies	4.8	5.3	11.0	31,748	6
East Asia and Pacific	11.0	6.3	15.4	5,980	6
Latin America and Caribbean	9.3	6.6	17.6	7,269	20
Sub-Saharan Africa	13.4	10.8	21.9	2,531	24

Source: Montenegro, C.E. & H.A. Patrinos (2013). Returns to Schooling Around the World. The World Bank.

“It has been shown that it takes about the same development of economic and technical skills to become an efficient borrower of technology as it does to develop new technology. Therefore, higher education is critical to not only producing new technology, but also to adapting it effectively.”

In “African Higher Education: Opportunities for Transformative Change” (APLU 2014) citing Evenson, R.E. (1977). “Cycles in Research Productivity in Sugarcane, Wheat and Rice,” cited in Eicher, C. K. (2009). Building African Scientific Capacity in Food and Agriculture. Review of Business and Economics. Vol LIV.3 July-September 2009: 238-257.

Current Challenges and Opportunities for African Higher Education

1: Access to higher education services

2: Broader Governance Issues

3: Institutional Leadership and Management

4: Finance of Higher Education

5: Limited Research Investment and Output

6: Quality and relevance in learning, discovery and public engagement

7: Information and Communications Technology

Recommendations

1. Invest in higher education!
2. Invest in a few places – concentrate investments in a few institutions; go deep.
3. Focus on institutional reform – and bring in expertise for that kind of endeavor.
4. Make use of new educational technologies to improve quality and access.

To access the APLU report on African Higher Education go to:

www.aplu.org/knowledgecenter

APLU's Knowledge Center on Higher Education for African Development

Role of Animal Source Foods to Improve Diet Quality and Growth and Development in Kenyan Schoolers

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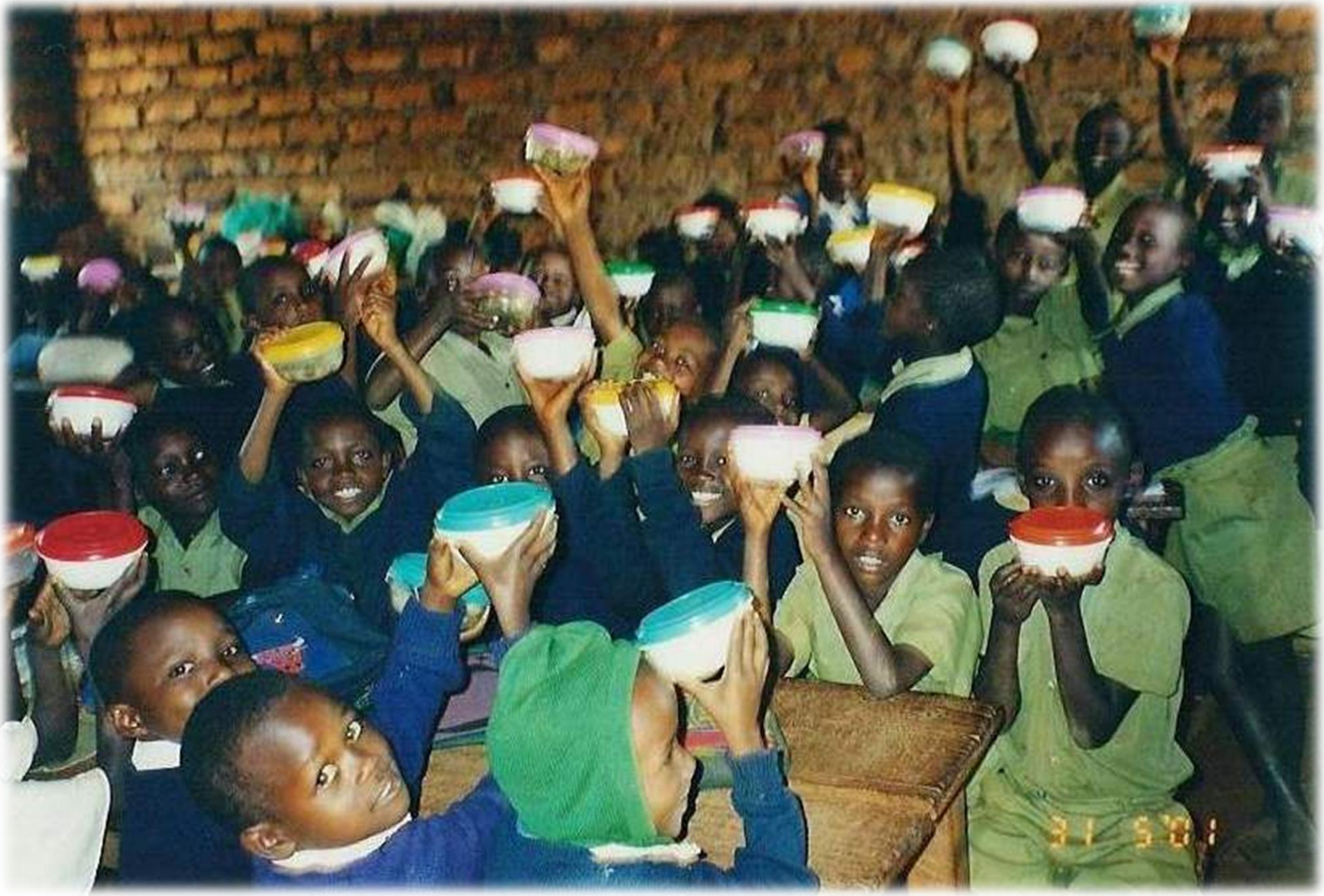
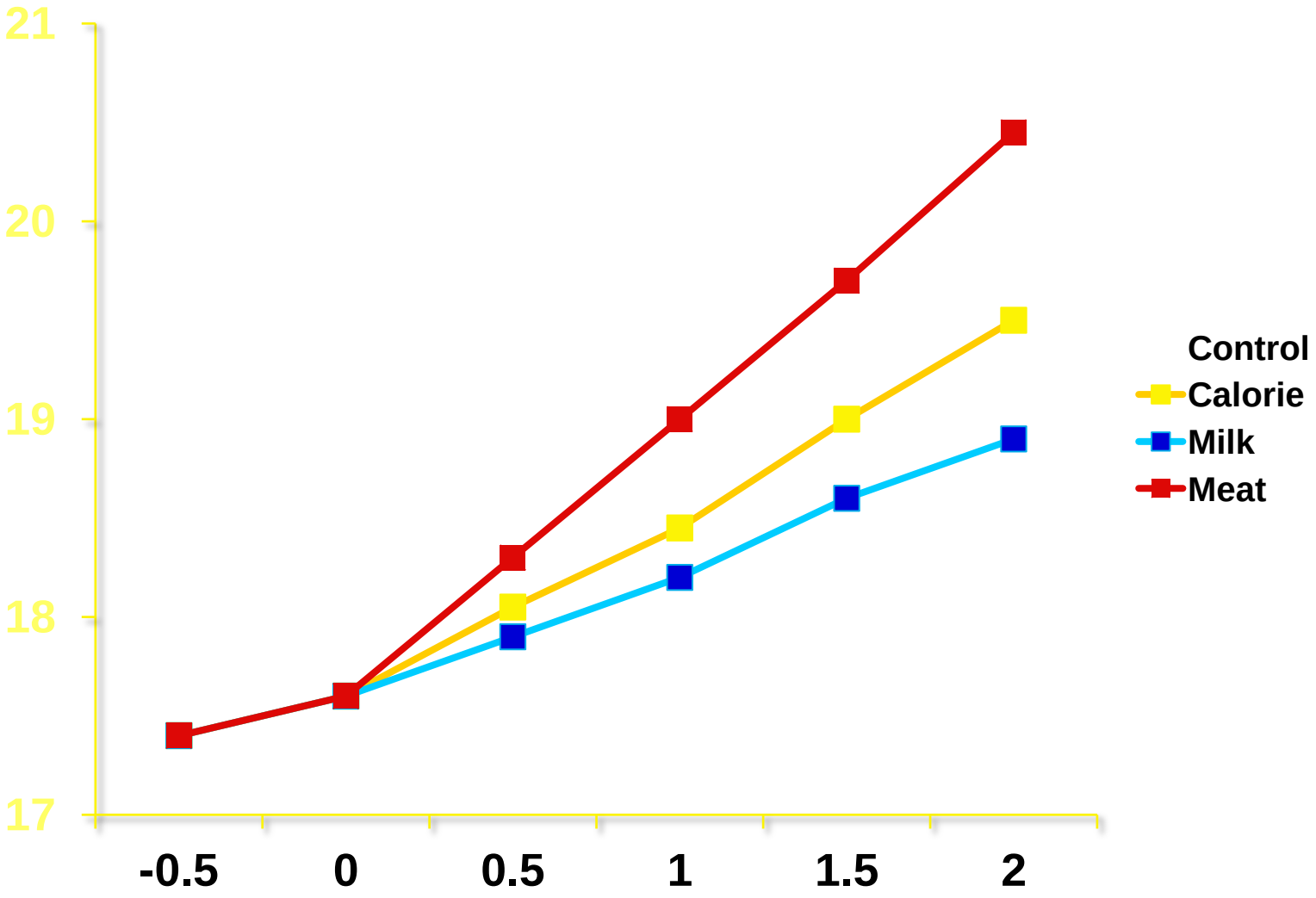
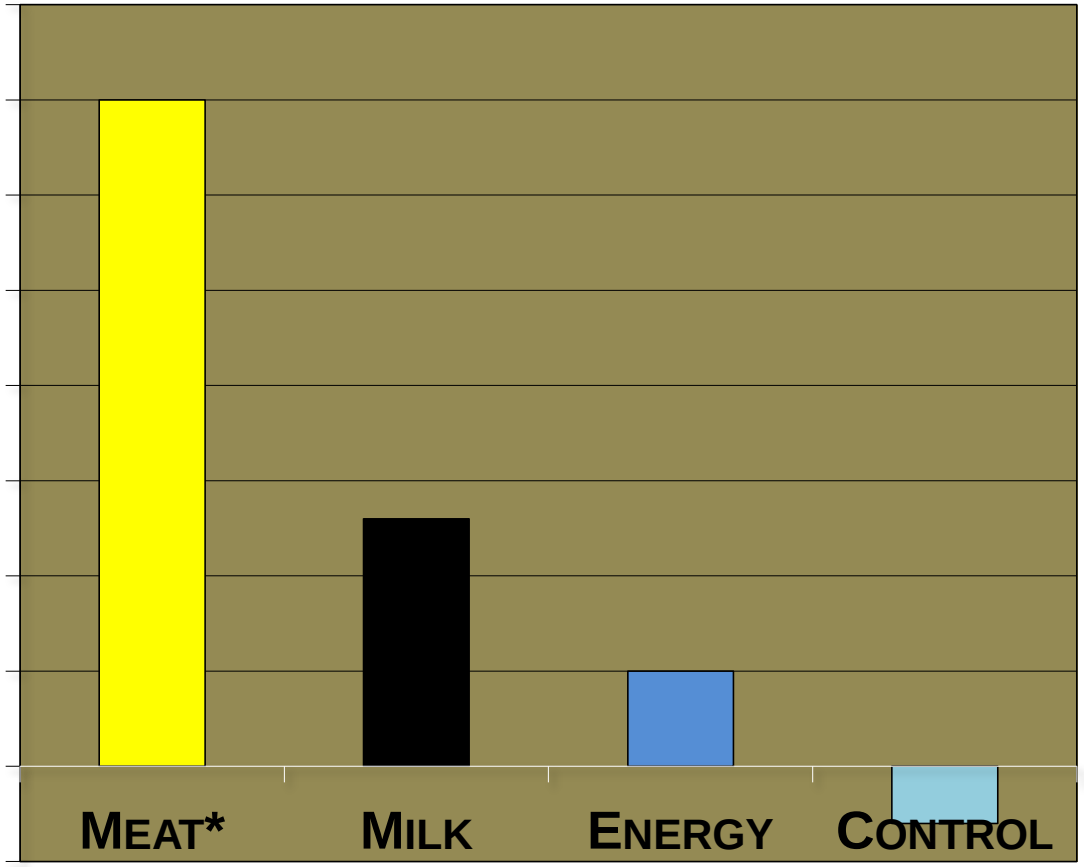


RAVEN's SCORES: Culturally neutral intelligence test



Change in end of term test scores



**Feeding group scores controlled for baseline scores: Meat significantly greater change.*

Compared to all other groups,

THE MEAT GROUP

- Had greatest increase in % time spent in high activity **levels, and least % time in low activity.**
- Spent more % time in leadership and initiative.
- Were more talkative, playful – and "disruptive".

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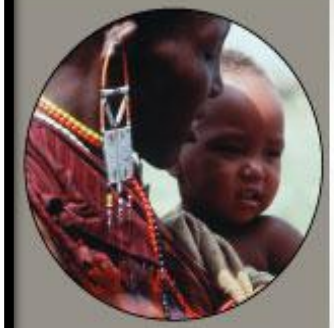


American Society for Nutritional Sciences
75th Anniversary
1928-2003

Animal Source Foods to Improve Micronutrient Nutrition and Human Function in Developing Countries

Proceedings of the conference held in Washington, DC June 24-26, 2002

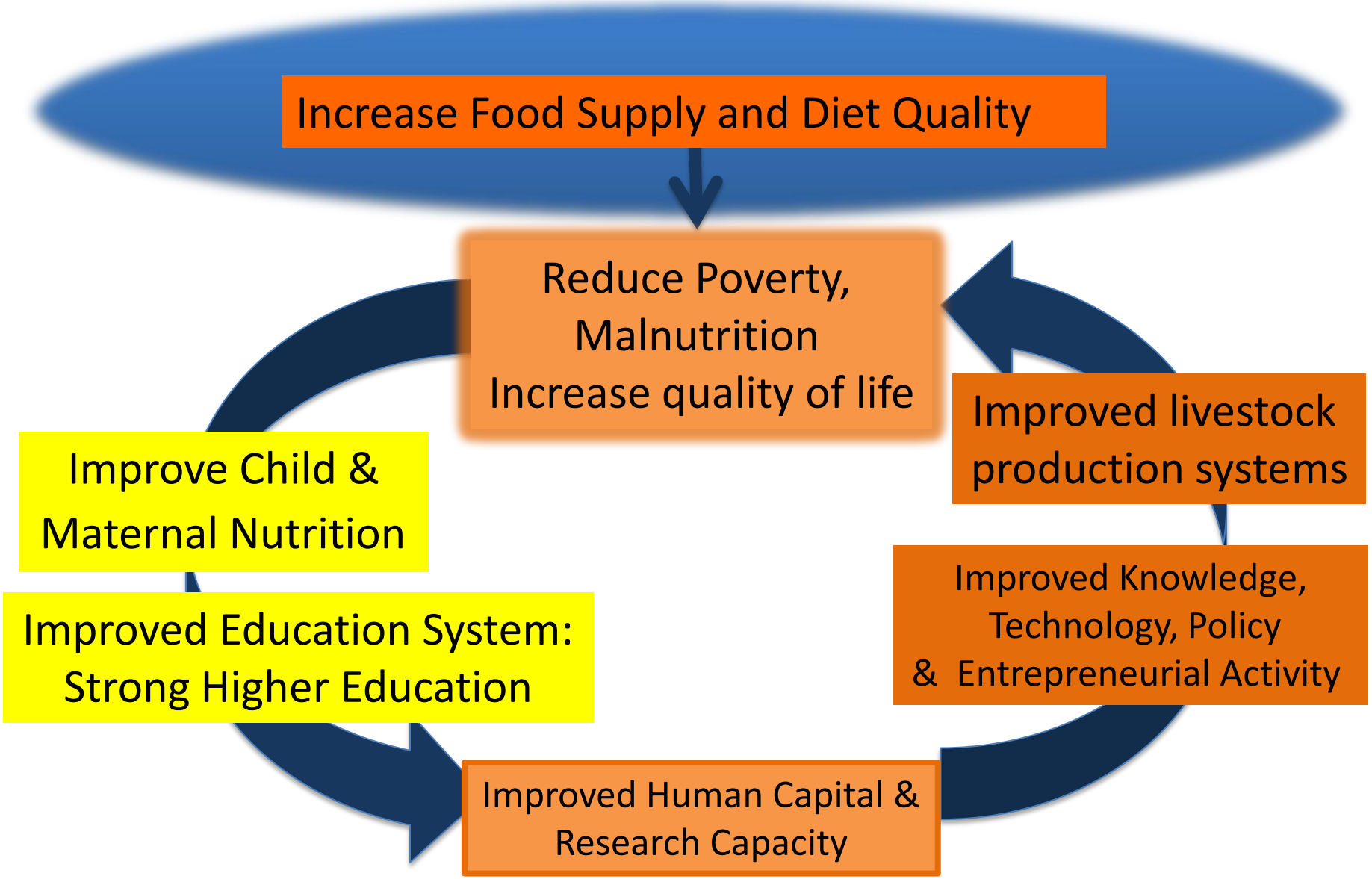
Guest Editors
Montague Demment
Lindsay Allen

Published as a Supplement to The Journal of Nutrition

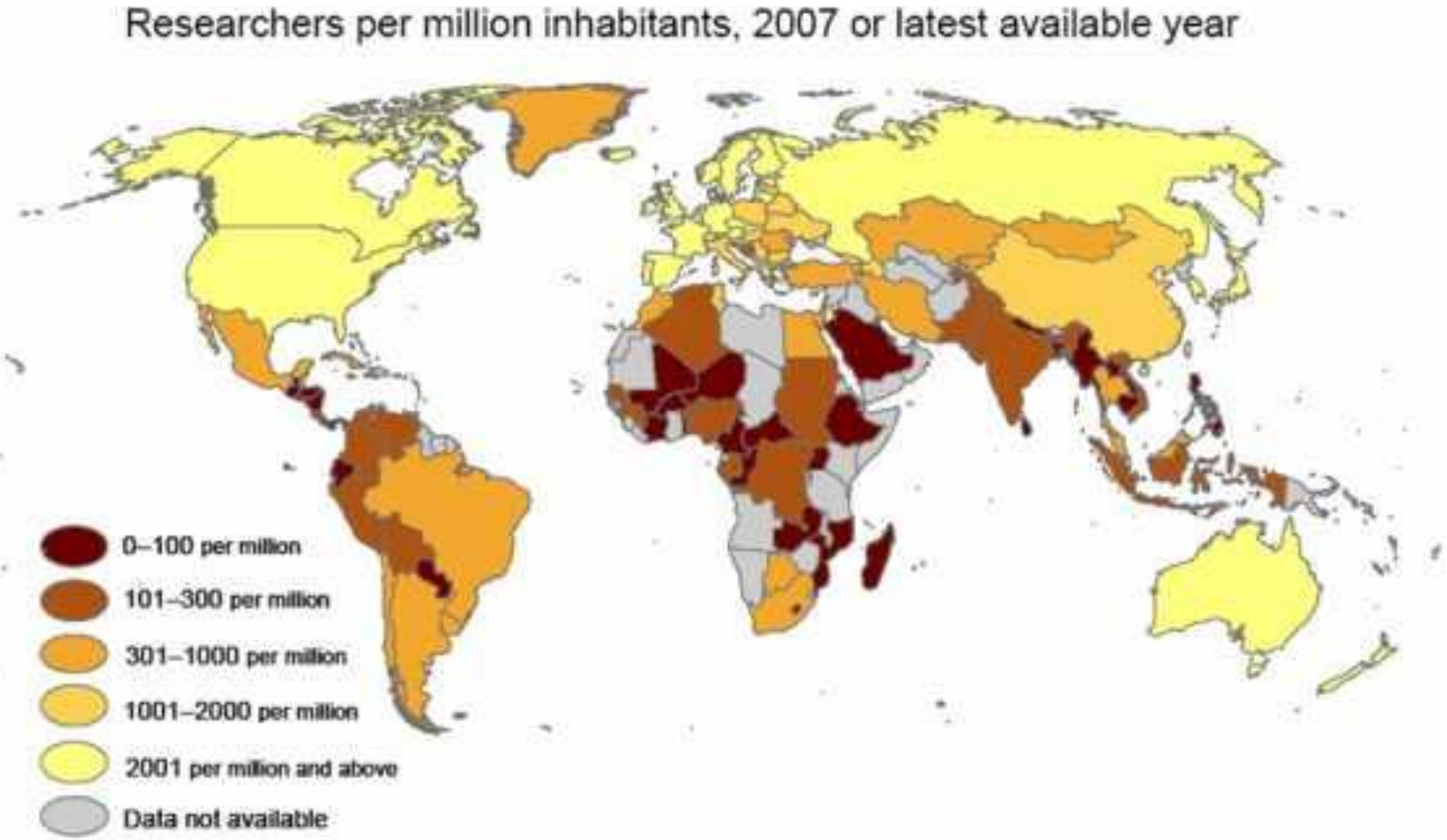
Official Publication of the American Society for Nutritional Sciences

Online at www.nutrition.org

Human Capital, Research and Innovation:
The fundamental engine of change



Research Densities



Source: http://accessible-science.org/accessible/?page_id=2