

# **The History and Future of Academic Ranking of World Universities**

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## *Let a Thousand Flowers Blossom*

- UNESCO Global Forum “Rankings and Accountability in Higher Education”, 16-17 May 2011, Paris.
- Although there are many limitations and problems, ranking is **useful** to a variety of stakeholders in many different ways and is becoming one of the major quality assurance tools.
- Whether universities and other stakeholders agree with rankings or not, they are clearly here to **stay**. The key issue then becomes how to **improve** rankings and **wisely use** rankings.

# OUTLINE

- The History
- The Ranking
- The Future

# ***THE HISTORY***

# Chinese Dream of WCU

- **World-Class University (WCU) is a dream for generations of Chinese. It's not only for pride, but also for the future of China.**
- **Since 1990s, Chinese government has launched several initiatives for research universities. The best-known one is specially designed to build WCU (985 Project).**
- **Many top Chinese universities had setup their strategic goals as WCU. Most of them have also set time tables for reaching the goals.**

# Questions About WCU

- What is the **definition and criteria** for a WCU
- **How many** WCU should there be in the world?
- What are **the positions of top Chinese universities** in the world?
- How can Chinese universities improve themselves to reach the goal of WCU?

*(From benchmarking to ranking)*

# Academic Ranking of World Universities (ARWU)

✓ 2003

✓ 2004

✓ 2005

✓ 2006

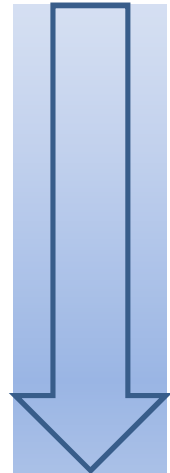
✓ 2007

✓ 2008

✓ 2009

✓ 2010

✓ 2011



**Find out the positions of top Chinese Universities in the world higher education system**

**Provide one source of information for the global comparison of universities**

# Academic Ranking of World Universities by Broad Subject Fields (ARWU-FIELD)

**2007, 2008, 2009, 2010, 2011**

## **Five Broad Subject Fields**

- **Natural Sciences and Mathematics (SCI)**
- **Engineering/Technology and Computer Sciences (ENG)**
- **Life and Agriculture Sciences (LIFE)**
- **Clinical Medicine and Pharmacy (MED)**
- **Social Sciences (SOC)**

# Academic Ranking of World Universities by Subject Fields (ARWU-SUBJECT)

**2009, 2010, 2011**

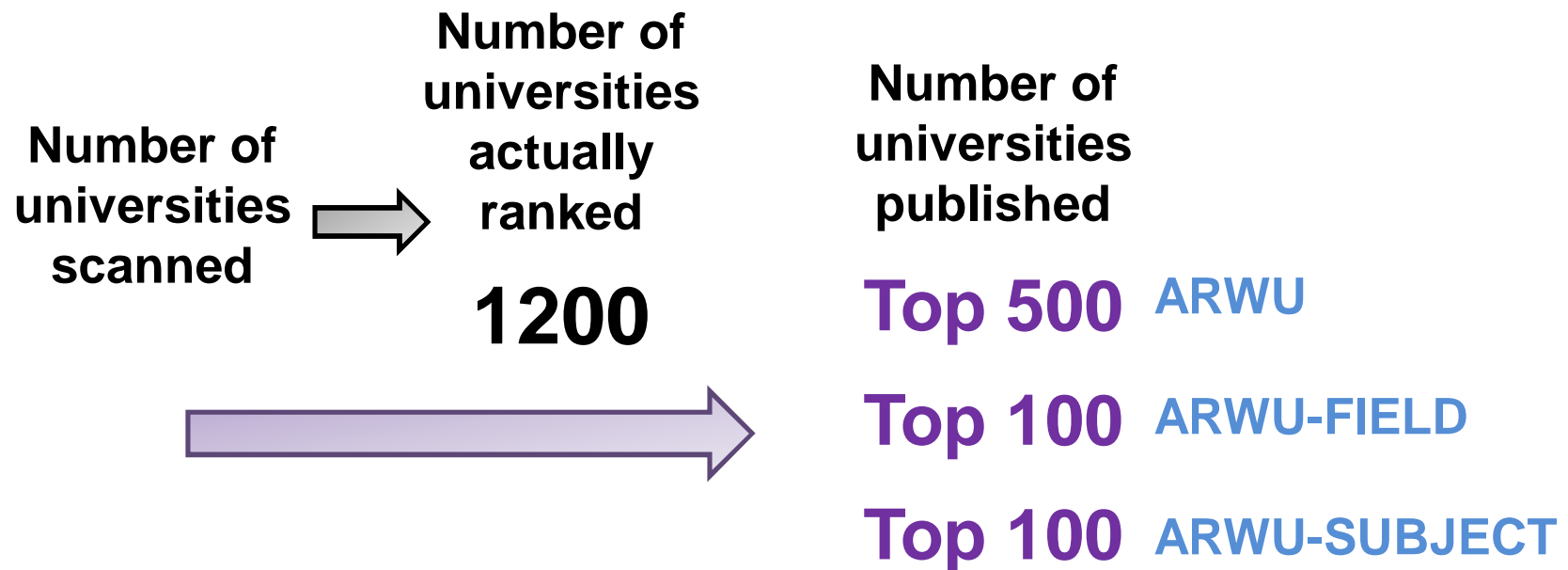
## **Five Subject Fields**

- **Mathematics**
- **Physics**
- **Chemistry**
- **Computer Sciences**
- **Economics / Business**

# ***THE RANKING***

# Selection of Universities

- Any university that has any Nobel Laureates, Fields Medals, Highly Cited Researchers, or papers in *Nature* or *Science*
- Major universities of every country with significant amount of papers indexed by Citation Indexes of Thomson



# Criteria and Weights of ARWU

<b>Criteria</b>	<b>Indicator</b>	<b>Code</b>	<b>Weight</b>
Quality of Education	Alumni of an institution winning Nobel Prizes and Fields Medals	<i>Alumni</i>	10%
Quality of Faculty	Staff of an institution winning Nobel Prizes and Fields Medals	<i>Award</i>	20%
	Highly cited researchers in 21 broad subject categories	<i>HiCi</i>	20%
Research Output	Papers published in Nature and Science*	<i>N&amp;S</i>	20%
	Papers indexed in Science Citation Index-expanded and Social Science Citation Index	<i>PUB</i>	20%
Per Capita Performance	Per capita academic performance of an institution	<i>PCP</i>	10%

\*: For institutions specialized in humanities and social sciences such as London School of Economics, N&S is not considered and the weight of N&S is relocated to other indicators

# Criteria and Weights of ARWU-FIELD

	<i>Alumni</i>	<i>Award</i>	<i>HiCi</i>	<i>PUB</i>	<b>TOP</b>	<b>Fund</b>
<b>SCI</b>	10%	15%	25%	25%	25%	/
<b>ENG</b>	/	/	25%	25%	25%	25%
<b>LIFE</b>	10%	15%	25%	25%	25%	/
<b>MED</b>	10%	15%	25%	25%	25%	/
<b>SOC</b>	10%	15%	25%	25%	25%	/

# Criteria and Weights of ARWU-SUBJECT

	<i>Alumni Award</i>	<i>HiCi</i>	<i>PUB</i>	<i>TOP</i>	
<b>Mathematics</b>	<b>10%</b>	<b>15%</b>	<b>25%</b>	<b>25%</b>	<b>25%</b>
<b>Physics</b>	<b>10%</b>	<b>15%</b>	<b>25%</b>	<b>25%</b>	<b>25%</b>
<b>Chemistry</b>	<b>10%</b>	<b>15%</b>	<b>25%</b>	<b>25%</b>	<b>25%</b>
<b>Computer Science</b>	<b>10%</b>	<b>15%</b>	<b>25%</b>	<b>25%</b>	<b>25%</b>
<b>Economics / Business</b>	<b>10%</b>	<b>15%</b>	<b>25%</b>	<b>25%</b>	<b>25%</b>

# Main Sources of Data

➤ **Nobel laureates:**

<http://www.nobelprize.org>

➤ **Fields Medals:**

<http://www.mathunion.org/medals/>

➤ **Highly-cited researchers:**

<http://www.isihighlycited.com>

➤ **Papers published in *Nature* and *Science*:**

<http://www.isiknowledge.com>

➤ **Papers indexed in SCIE and SSCI:**

<http://www.isiknowledge.com>

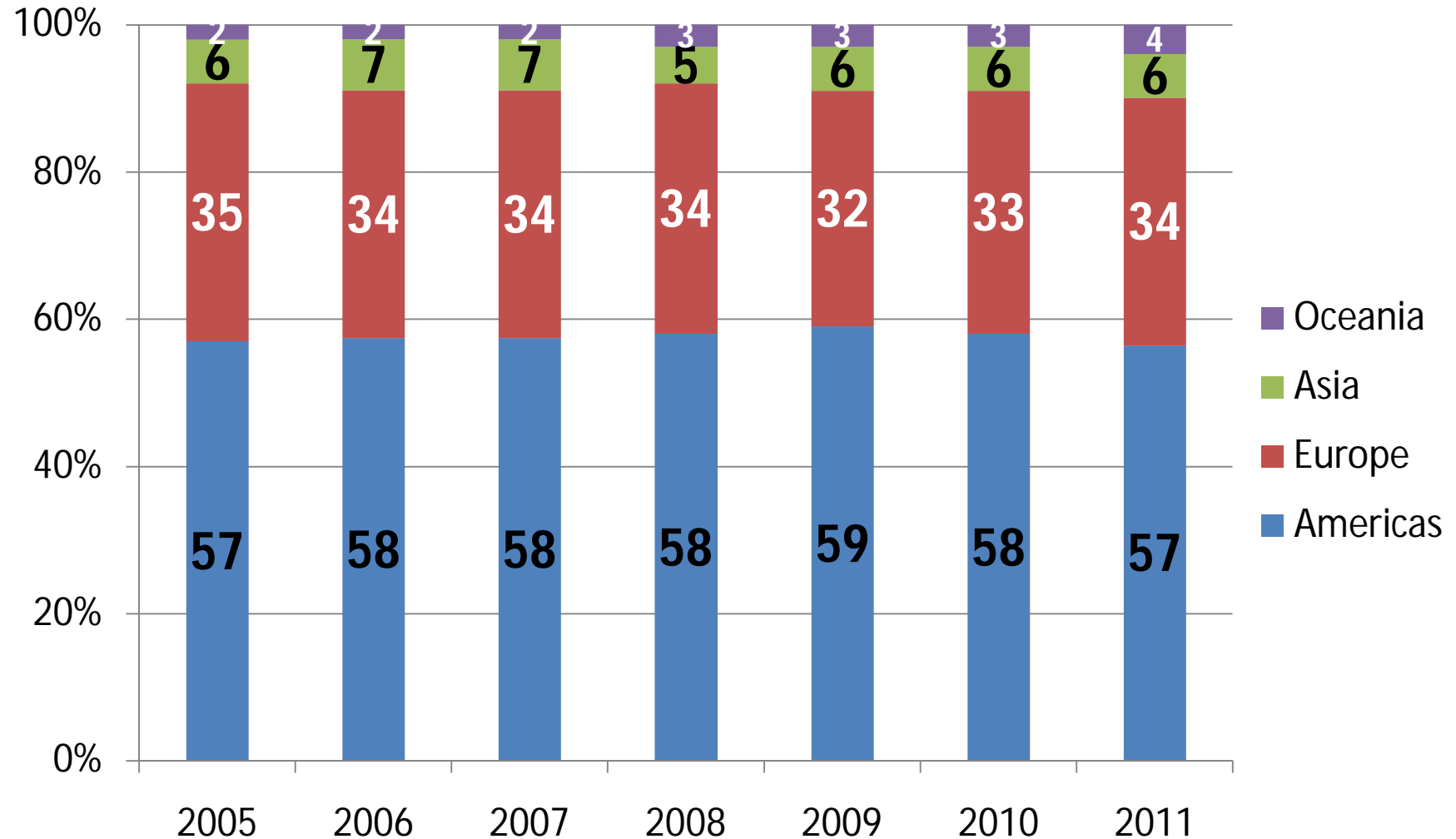
# Features of ARWU

- First multi-indicator global ranking
- Transparent and stable methodologies
- Objective indicators only
- Third-party data only
- Verifiable results

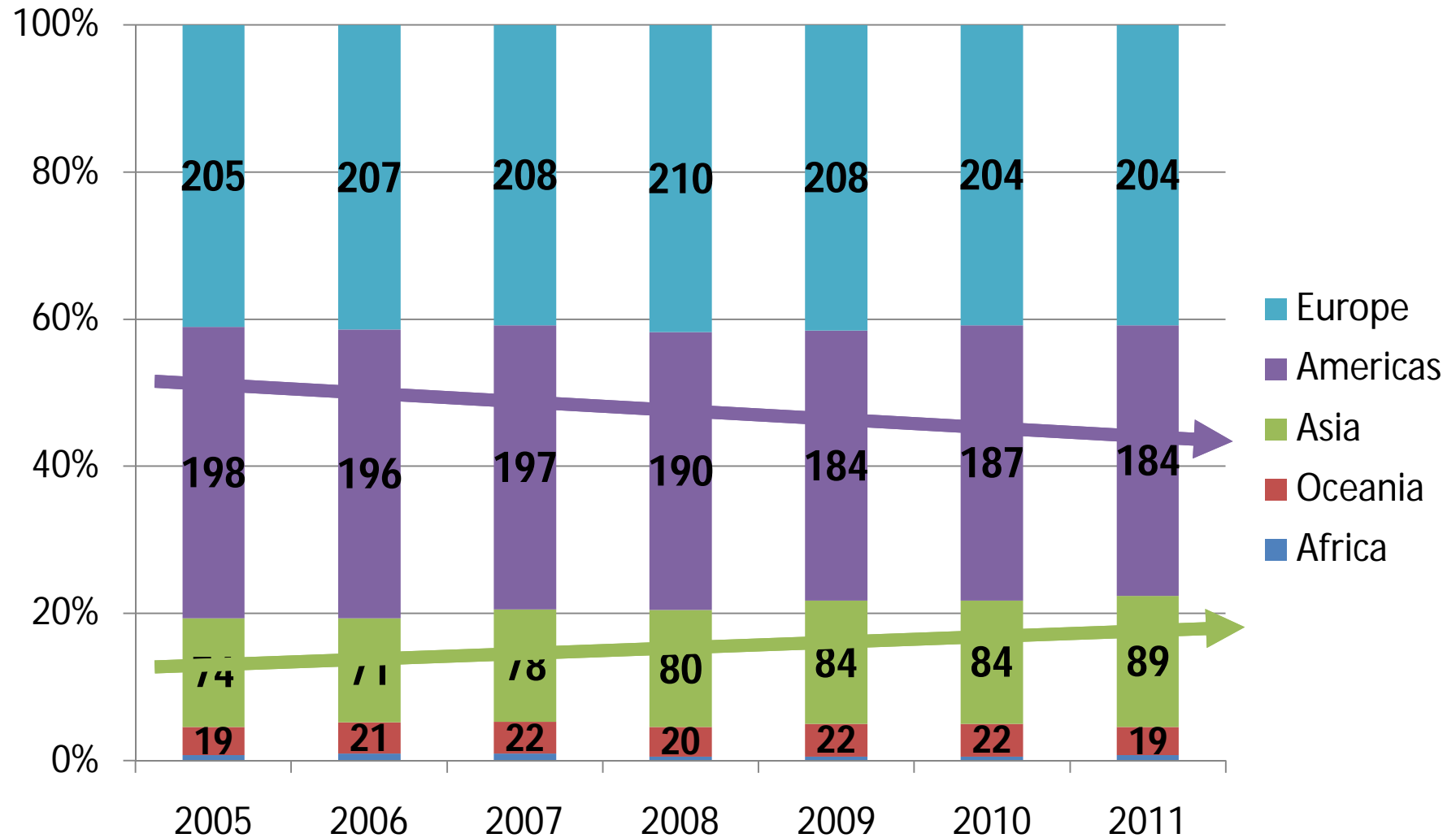
## Average Performance by ARWU Indicators

Indicator	Alumni	Award	HiCi	N&S	PUB
<b>Top 100</b>	<b>3.36</b>	<b>1.47</b>	<b>29.2</b>	<b>11.2</b>	<b>3600</b>
<b>101-200</b>	<b>0.50</b>	<b>0.12</b>	<b>6.9</b>	<b>2.8</b>	<b>2000</b>
<b>201-300</b>	<b>0.27</b>	<b>0.02</b>	<b>2.8</b>	<b>1.4</b>	<b>1550</b>
<b>301-400</b>	<b>0.19</b>	<b>0.03</b>	<b>1.9</b>	<b>0.7</b>	<b>1000</b>
<b>401-500</b>	<b>0.04</b>	<b>0.01</b>	<b>0.9</b>	<b>0.5</b>	<b>900</b>

# Top 100 Universities by Region



# Top 500 Universities by Region





***THE FUTURE***

# Updating ARWU

- **ARWU** Top 500 annually
- **ARWU-FIELD** Top 100 annually
- **ARWU-SUBJECT** Top 100 annually

# Improving ARWU

- **Including more international scientific awards**
  - possibly one from each subject area
- **Including more internationally renowned scholars**
  - plenary speakers etc.
- **Including more internationally renowned alumni**
  - executives in top companies and intl. organizations
- **Including more types of research outputs for social sciences**
  - books, etc.

# Diversifying ARWU

- **Ranking of specialized universities**
  - medicine, engineering, etc. (classification)
- **Ranking by regions of special interests**
  - Eastern Europe, South America, South Asia, etc.
- **Ranking emphasizing per capita performance**
  - comparable definition and data of academic staff
- **Ranking considering history, budget, size, etc.**

# Profiling Research Universities

- Building databases of world research universities with as many indicators as possible (*GRUP*)
- Profiling and **interactive** analysis of world research universities at institutional level
- **Benchmarking** with peer research universities in the world at faculty/departmental level
- Annual report of world-class universities

## Contributing to Ranking Community

- **Theoretical research** on ranking to better understand the phenomenon of ranking
- **Professional services** through IREG involvement and conference organization
- *IREG International Observatory on Academic Ranking and Excellence*

*Thank You Very Much*

<http://www.ShanghaiRanking.com/>

<http://www.ARWU.org/>