Enclosure 14

ICRANet & World University Rankings

Abstract: Herein we report a self-consistent benchmark of ICRANet - *in terms of research output* - with respect to the latest Shanghai World Universities Ranking (released in September 2016)…

ICRANet & World University Rankings

Why Shanghai-ARWU ???

- **basically because Shanghai-ARWU is the most popular WUR**
- **It is essentially a *bibliometric-type* WUR based on *scientific publications***
- **ARWU considers every university that has any Nobel Laureates, Fields Medalists, Highly Cited Researchers, or papers published in Nature or Science**
- **more than 1000 universities are actually ranked and the best 500 are published on the web**
- ***Research output indicators are (also) normalized over academic staff units***

ICRANet & World University Rankings

Criteria	*Indicator*	*Code*	*Weight*
Quality of Education	**Alumni of an institution winning Nobel Prizes and Fields Medals**	**Alumni**	**10%**
Quality of Faculty	**Staff of an institution winning Nobel Prizes and Fields Medals**	**Award**	**20%**
	Highly cited researchers in 21 broad subject categories	**HiCi**	**20%**
Research Output	**Papers published in Nature and Science***	**N&S**	**20%**
	Papers indexed in Science Citation Index-expanded and Social Science Citation Index	**PUB**	**20%**
Per Capita Performance	**Per capita academic performance of an institution**	**PCP**	**10%**
Total			**100%**

ICRANet & World University Rankings

Criteria	*Indicator*	*Code*	*Weight*
Quality of Education	**Alumni of an institution winning Nobel Prizes and Fields Medals**	**Alumni**	**10%**
Quality of Faculty	**Staff of an institution winning Nobel Prizes and Fields Medals**	**Award**	**20%**
	Highly cited researchers in 21 broad subject categories	**HiCi**	**20%**
Research Output	**Papers published in Nature and Science***	**N&S**	**20%**
	Papers indexed in Science Citation Index-expanded and Social Science Citation Index	**PUB**	**20%**
Per Capita Performance	**Per capita academic performance of an institution**	**PCP**	**10%**
Total			**100%**

PCP	***The weighted scores of the above five indicators divided by the number of full-time equivalent academic staff*. If the number of academic staff for institutions of a country cannot be obtained, the weighted scores of the above five indicators is used.**

ICRANet & World University Rankings

ShanghaiRanking's Academic Ranking of World Universities 2016 Press Release

World Rank	Institution	Total Score	Score on PUB	Score on PCP
8	California Institute of Technology (Caltech)	57,8	43,6	**100**
1	Harvard University	**100**	**100**	79,2
6	Princeton University	62	42,9	74,4
5	Massachusetts Institute of Technology (MIT)	69,2	61,7	69,7
87	Ecole Normale Superieure - Paris	26,2	26,2	62,4
3	University of California, Berkeley	70,1	68,4	59
4	University of Cambridge	69,6	67,8	58,5
2	Stanford University	74,7	73,1	55,8
401-500	Scuola Normale Superiore - Pisa	-	18,3	50,5
96	The University of Texas M. D. Anderson Cancer Center	25,5	41,8	50,4

Caltech features the higher "Per Capita Performance, PCP" score into ARWU 2016 followed by Harvard University…

ICRANet & World University Rankings

Interestingly, when comparing ***Caltech vs ICRANet*** publication score – by using SCOPUS (Elsevier) Data Base – a very similar research output has emerged *(under peer review process, no conference proceedings):*

the (2015) average Number of Publication per Academic Faculty Staff (ANP-AFS) results equal to 10,73 for Caltech (325 units – 3486 products) and 9,00 for ICRANET (6 units, 54 products).

In this context, Harvard displays 2260 academic units widespread over 22781 publications (ANP-AFS = 10.08) released in 2015 year (always SCOPUS source).

ICRANet & World University Rankings

- In summary: with an in-house made benchmark we have realized that, in terms of *normalized research output*, ICRANet's publication score results in line with Caltech and Harvard Universities which appear on top in the ARWU-Rankings….

  In other words, this means that ICRANet must be considered as an excellence centre where making research at the maximum level within an international background level…

  Now the question is…How to further improve research productivity within the ICRANet network?