



# Hegemonies in a globalized science system

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IRD & IFRIS

# Non-hegemonic countries

- Do not influence the international research agenda
- Are in a subordinate work position within an « international market of competences »
- (ref. Losego & Arvanitis)

# Paradigm change

- « National » focus
  - Institutionalization : national and public
  - scientific communities (national/disciplinary)
- International ? Global « Agencies »
  - Foundations, NGOs, enterprises (PPP)
  - International institutions BMG, Wellcome, WHO, CGIAR...
  - « Networks » : big science, large comparative projects, natural expeditions, ...

# But...

- Knowledge is always local
- Scientific knowledge is instrument dependent
  
- The wagnerian dilemma sink or link
  - Network nodes need somewhere to be: centres of calculation of Latour
  - Networks need fixed jetties: les pôles sont des môles
- → You cant **link** if you dont **sink** !

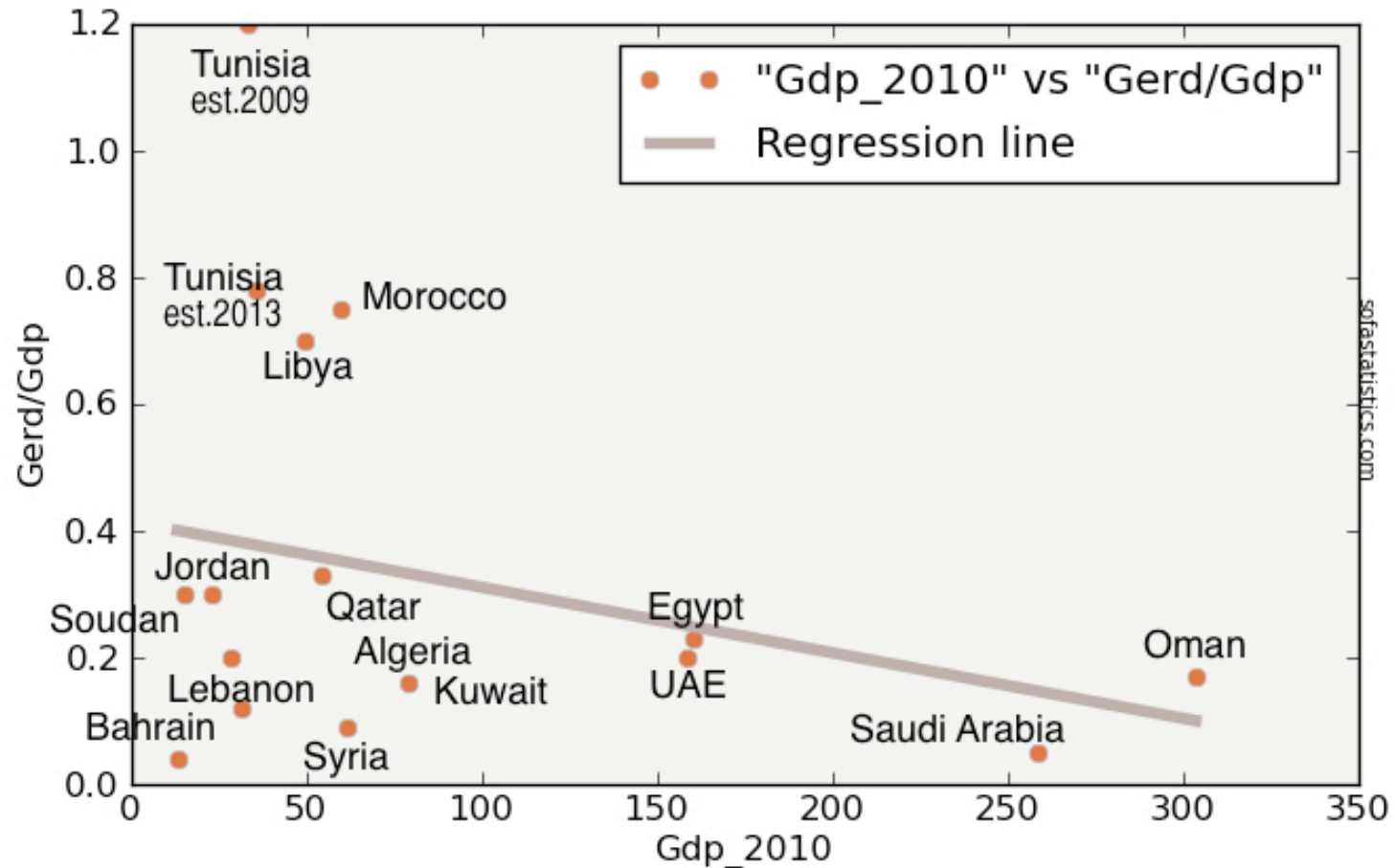
**THE RESEARCH SYSTEM(S)?**

# Agencies in Arab countries

Country	Fund	%GERD/Amounts
Egypt	STDF	1.8% - US\$ 14 millions
Egypt	RDI	US\$ 6 millions
Jordan	SRSF	JD 4 millions
Lebanon	CNRS-GRP	US\$ 1.1 millions
Qatar	QNRF	US\$ 180 millions
Morocco	FNRSDT	1.76% (between 300 and 500 millions Dhs =26-44 millions €)
Tunisia	Federative projects	€ 1 million
All Arab countries	Arab Council for the Social Sciences	Total budget of ACSS is less than US\$ 2 millions

- Africa : 17 countries = around 40 funds/programmes (Mouton, Gaillard & van Lill 2014)
- France (ANR): 40 milliards € = 2% de DIRD & DIRD/PIB= 2.24% of GDP
- USA, NSF: US\$ 7 milliards = 1.63% de DIRD US (DIRD/PIB= 2.85%).

# DIRD/PIB : No correlation in Arab countries



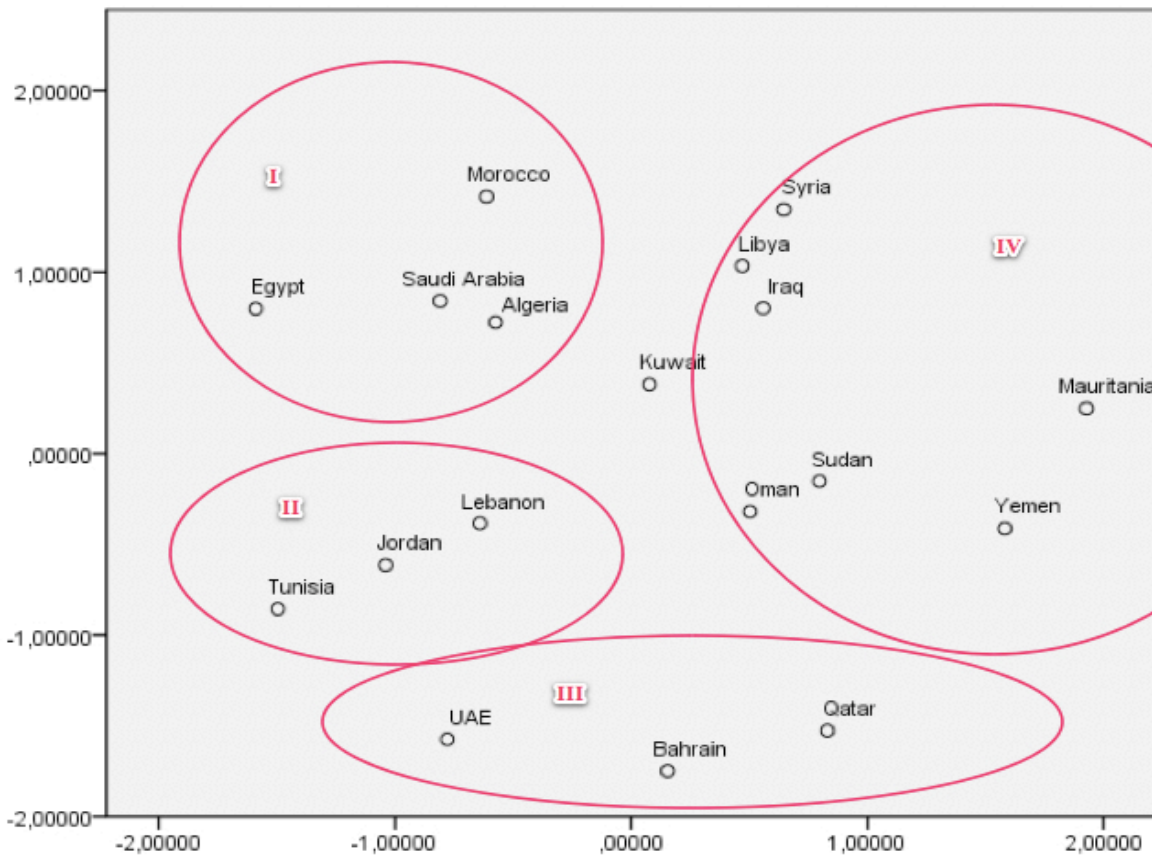
# Few researchers / Lots of expatriates

Countries	Nb Researchers (2007)	Researchers per 1 million inhabitants	Expatriates with high skills (approximation)
Egypt	67 652	750	140 000
Algeria	5 764 *	170	213 000
Morocco	27 714	780	200 000
Tunisia	15 159	1390	66 000
Kuwait	158	57	17 000
Qatar	105 (1 204)	42 / 516	1 400
Saudi Arabia	716	41	12 000
UAE	3 500	38	3 500
Jordan	42 151 !!	420	280 000
Lebanon	13 316 / 2 000	325 / 50	17 000



# Size matters / Governments matters

	Main characteristics	Countries
I	Large, centralized and dynamic research systems	Egypt, Morocco, Saudi Arabia , (Algeria)
IV	Large, centralized and low-performing research systems	Iraq, (Libya), Sudan, Syria = COUNTRIES AT WAR
II	Small, dynamic research systems	Tunisia, Lebanon, Jordan, Kuwait
III	Small, flexible and market-oriented research systems	Qatar, United Arab Emirates



Centralized even when  
“decentralized”, where  
the state is dominant  
Dynamic/non-dynamic  
Authoritarian govts & War

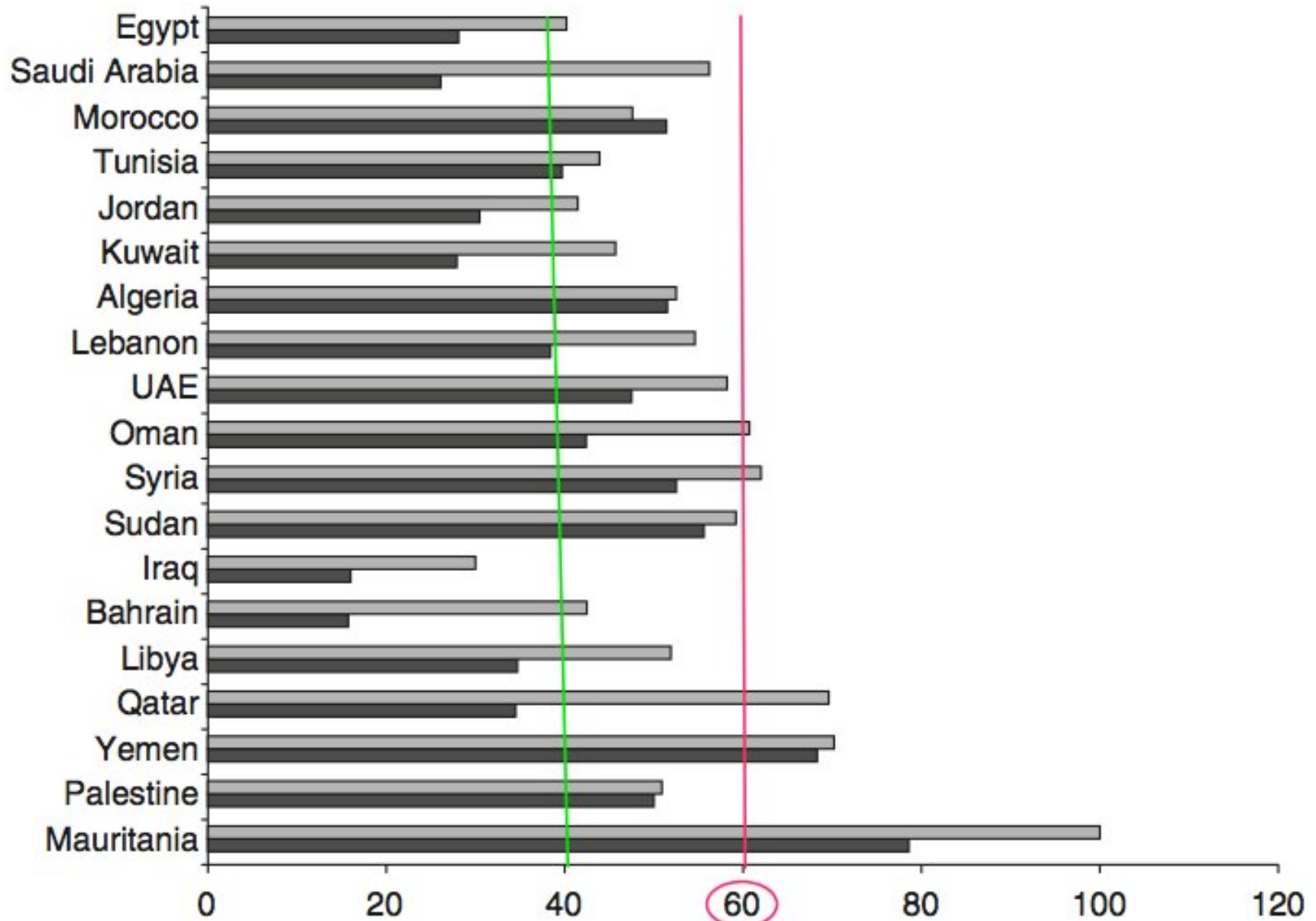
*2 exceptions among Arab countries :*

- Lebanon
- Tunisia

# Foreign support

- Array of funding sources
- European Union (2007-2013) :
  - Egypt RDI (co-funding) : €11 million in 2007 & € 20 million in 2010
  - Tunisia : € 12 million
  - Jordan : €5 million
  - Algeria : € 38.6 million programmes , co-funded by the EU for €21.5 million
  - Morocco (twinning €1.3 million)
  - Various “Erasmus mundus” scholarships and TEMPUS projects
- We estimate that the EU has spent the non-negligible amount of €300 million in the period 2007–2013.

# International co-authorship in Arab countries 2000-2010



# Changing the system

- Agencies w/funding by calls (all except Tunisia)
- Labelling teams (Tunisia)
- “National” Evaluation of research (Morocco)
- Budgeting (Morocco – 2000)
- Academics promotion
- Innovation-related activities : Berytech
- Relation to societal challenges: connection to partners outside research

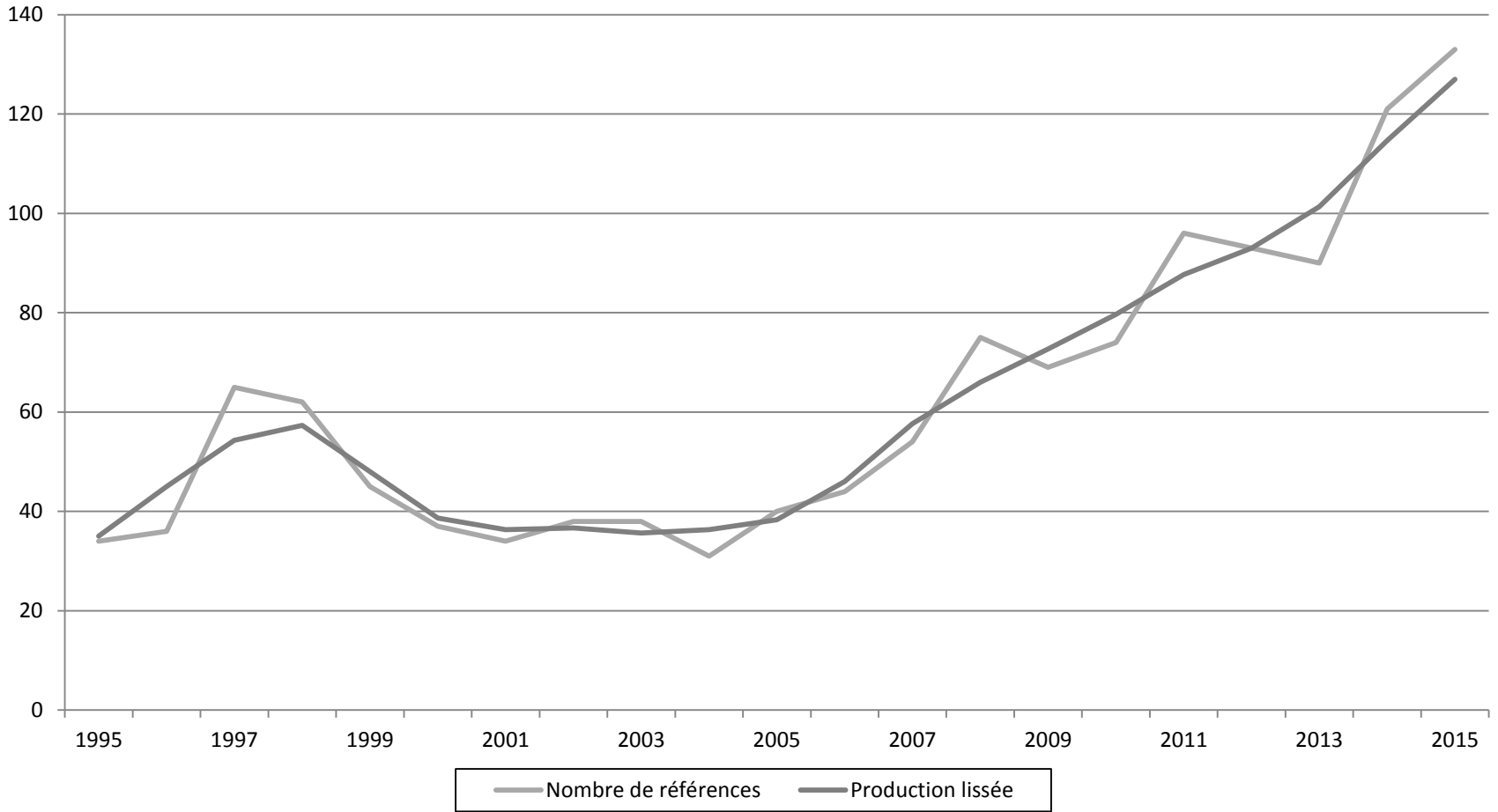
# Facing difficulties

- Social needs not taken in consideration
- Social pressure on the university system
- Social sciences not considered as important
- Innovation ('network paradigm') has poor success
- Technoparks / incubators / innovation "hubs" (Tunisia /Egypt / Lebanon) but the economic system does not fund innovative entrepreneurs
  - (Paradox of innovation: low level of support and rather important activity)

## Issues : Relevance and Internationalization

- *Weak institutionalisation of research*
- Fragmentation
- No Social sciences (but see *Arab Council Soc Sciences* , U\$ 2 millions)
- Promotion system based on foreign publications : publish locally and die globally vs publish globally and die locally
- Foreign collaboration and cooperation as absolute necessity.

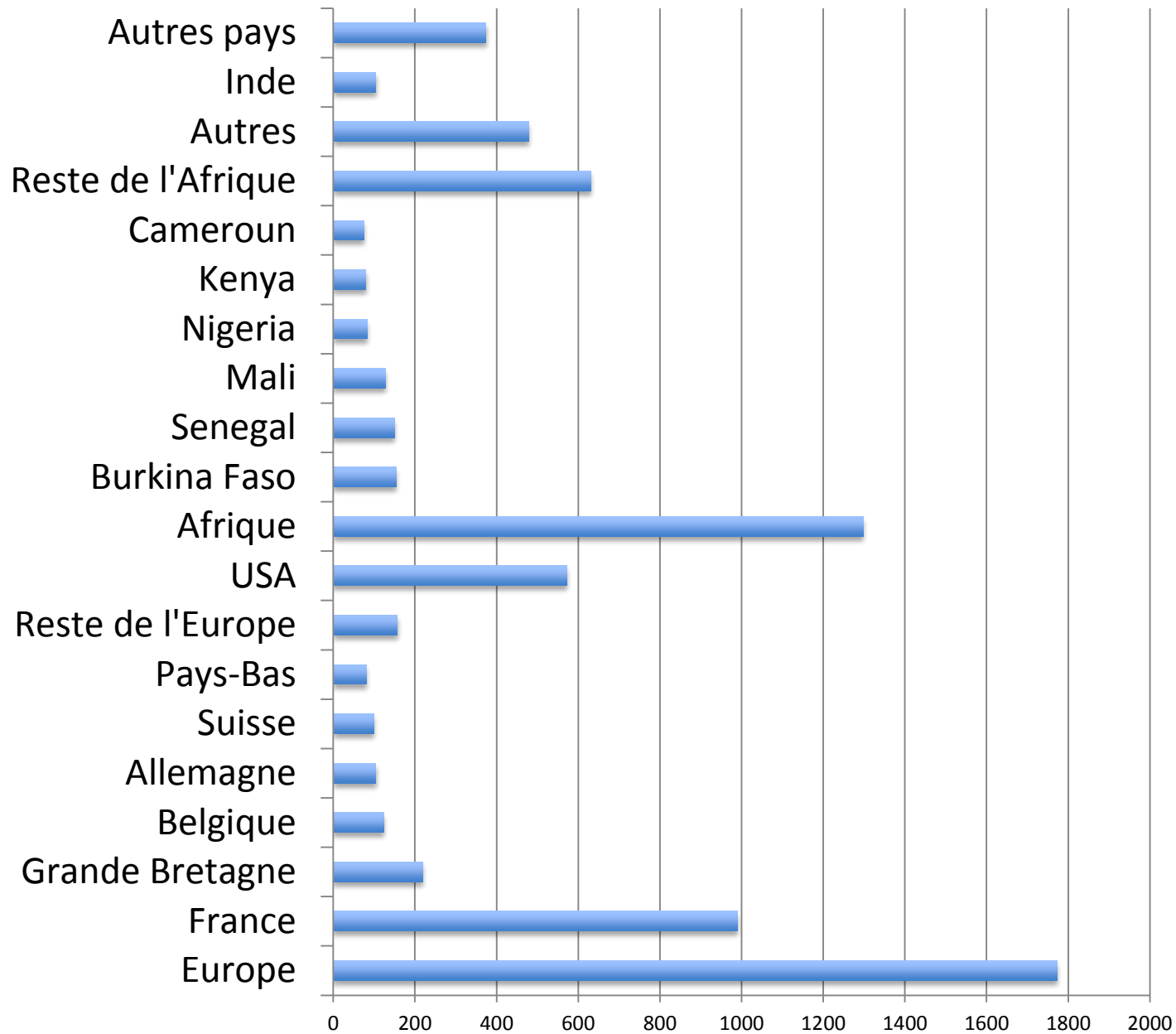
# Niger



Institutions 1995 - 2015	Nbr Refs
UAM, Niger	349
ICRISAT (toutes adresses) Niger=196	214
IRD + ORSTOM (toutes adresses)	229
Instituts Pasteur (toutes adresses)	80
INRAN, Niger	100
CERMES (ou Ctr Rech Med & Sanitaire), Niger	114
AGRHYMET, Niger	81
Epicentre, France et Niger	40
Minist Hlth, Niger / Minist Sante Publ, Niger	52
CNRS, France	46
Hop Natl Niamey, Niger	45
Réseau international schistosomiases RISEAL	19
LASDEL, Niger	12



# Niger : Number of institutions mentionned 1995-2015



Entité	Funding Agencies	records	%
EU	EUROPEAN COMMISSION /FP 6 & 7/ ERC	60	12,7%
US-FOND	BILL AND MELINDA GATES FOUNDATION	44	9,3%
FRA	IRD	25	5,3%
USA	NATIONAL INSTITUTES OF HEALTH	21	4,5%
USA	US AGENCY FOR INTERNATIONAL DEVELOPMENT USAID	19	4,0%
INT	AFRICAN MONSOON MULTIDISCIPLINARY ANALYSIS - AMMA PROJECT	16	3,4%
FRA	AGENCE NATIONALE DE LA RECHERCHE (ANR), France	16	3,4%
FR-ONG	MEDECINS SANS FRONTIERES	14	3,0%
FR-PRIVATE	SANOFI PASTEUR	13	2,8%
FRA	CNRS (INSU <sub>www</sub> )	14	3,0%
USA	NATIONAL SCIENCE FOUNDATION	12	2,5%
FRA	FRENCH MINISTRY OF FOREIGN AFFAIRS	9	1,9%
US-FOND	MCKNIGHT FOUNDATION COLLABORATIVE CROP RESEARCH PROGRAM	9	1,9%
INT	WORLD HEALTH ORGANIZATION (WHO)	9	1,9%
UK-FOND	WELLCOME TRUST	8	1,7%
BRA	CNPQ (Brésil) et CAPES	7	1,5%
CAN	INTERNATIONAL DEVELOPMENT RESEARCH CENTRE IDRC OF CANADA	7	1,5%
FRA	AGENCE FRANCAISE DE DEVELOPPEMENT AFD	6	1,3%
BEL	BELGIAN TECHNICAL COOPERATION	6	1,3%
DEU	GERMAN Federal Ministry for Economic Cooperation and Development BMZ	9	1,9%
INT	ICRISAT	6	1,3%

# Fund sources Niger (n=471 pub)

National funding	7	1,5%	Bill & Melinda Gates	44	9,3%
France	92	19,5%	Wellcome trust	8	1,7%
Belgique	11	2,3%	ONG France	14	3,0%
Grande Bretagne	12	2,5%	ONG US	7	1,5%
Allemagne	9	1,9%	Sanofi-Pasteur	15	3,2%
Danemark	5	1,1%			
			Afrique du Sud	6	1,3%
Suisse	4	0,8%	Brésil	7	1,5%
Monaco	3	0,6%	Inde	4	0,8%
EU	60	12,7%	Tunisie	2	0,4%
USA	61	13,0%	Initiatives	4	0,8%
Int Orga	51	10,8%			

# In conclusion

- Hegemonies are not a network issue: they relate to how a society values scientific knowledge
- Networks are « nationalized » (see WBI), they define legitimate « areas of concern »
- Organizing science :
  - Incentives
  - Instruments
  - Participation (citizen science, local or indigenous knowledge, etc...)