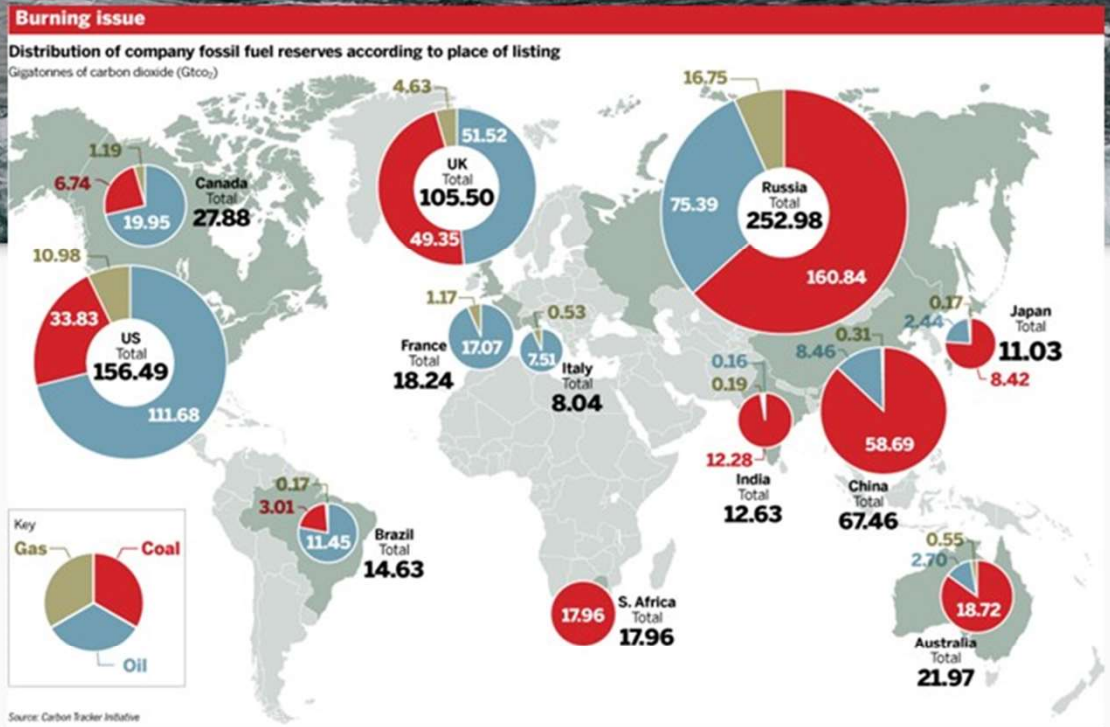


TISEC advantage #4

It has been estimated that proven oil and gas reserves are equivalent to around 46 and 59 years at current production levels.

Coal reserves worldwide are enough to last 118 years at current rates of production. <http://www.worldcoal.org/>

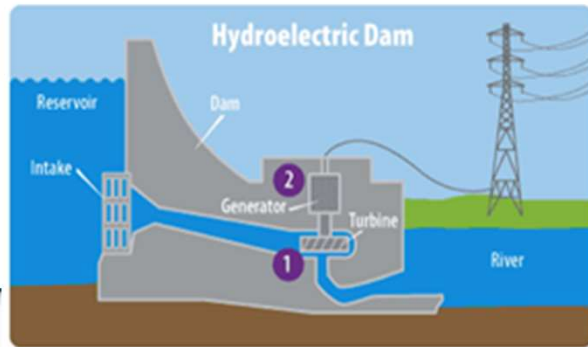
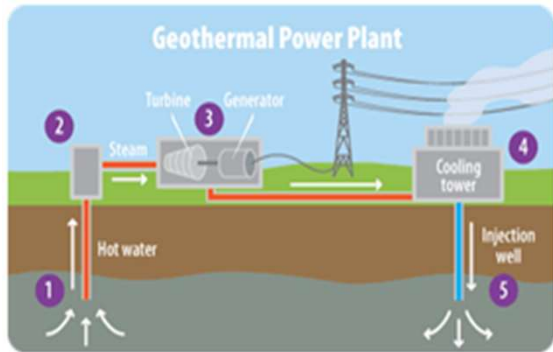
TISEC lasts forever.



Moreover once installed, TISEC will generate no costs for fuels like it is the case for coal or oil.

This makes them independent from future energy price increases and guarantees a long-term investment.

<https://www.giz.de/en/downloads/giz2013-en-desk-study-costs-renewable-energy-philippines.pdf>



In fact, TISEC is even better since changes in weather and climate do not impact tidal currents unlike wind, solar and even hydroelectricity.

TISEC is therefore **climate-proofed**



Drought = reduced flow = reduced energy



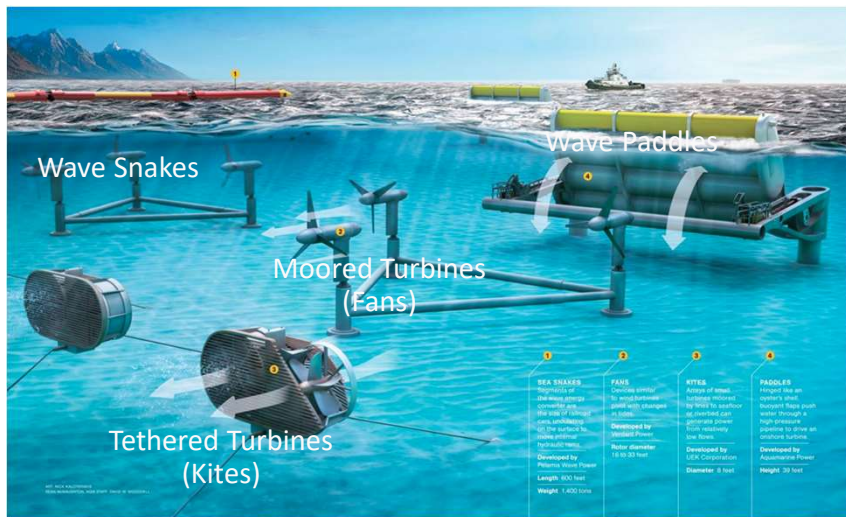
<http://www.gettyimages.com/detail/video/solar-panels-under-overcast-sky-marburg-germany-stock-footage/89066484>



Ocean Energy Conversion

Mechanical and Gravitational energy Capture

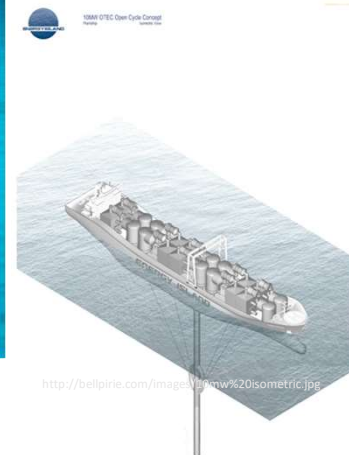
- Wave
- Current



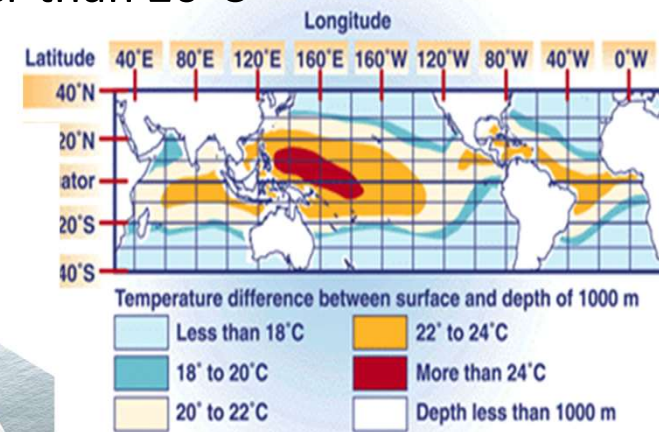
<https://natgeoeducationblog.files.wordpress.com/2014/04/tidalenergydiagram.jpg>

Gradient

- Salinity Gradient
- Thermal Gradient
 - OTEC - Thermal Gradient between surface and depth of 1000m to be equal or greater than 20°C



<http://bellpirie.com/images/2012/01/otec-isometric.jpg>



<http://www.nrel.gov/otec/>



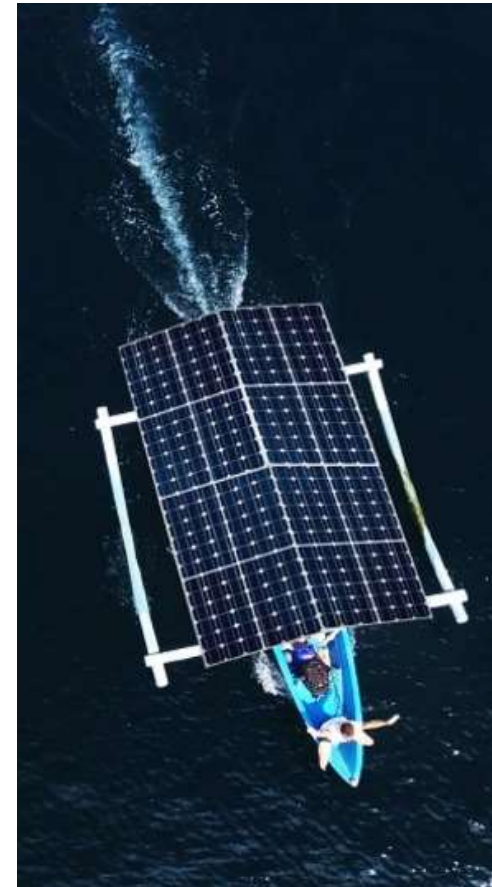
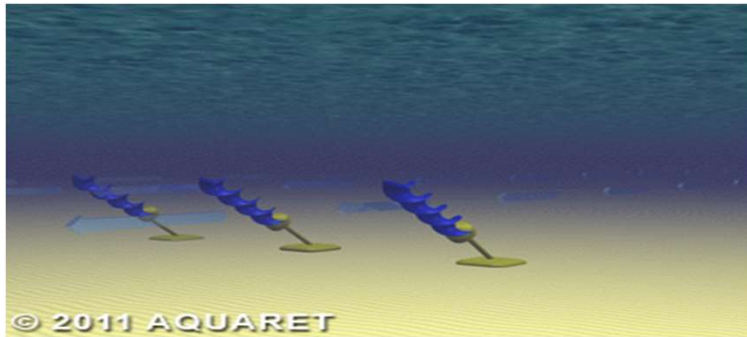
LTDavid



DECREASE RELIANCE
ON FOSSIL FUEL



GREEN ENERGY
PRODUCTION

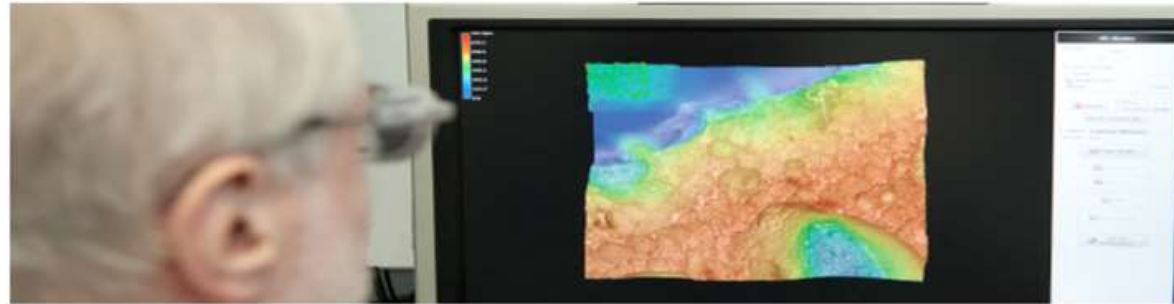


LTDavid



RESOURCE AND
WASTE
MANAGEMENT

Corrosion Testing



Anti-Biofouling

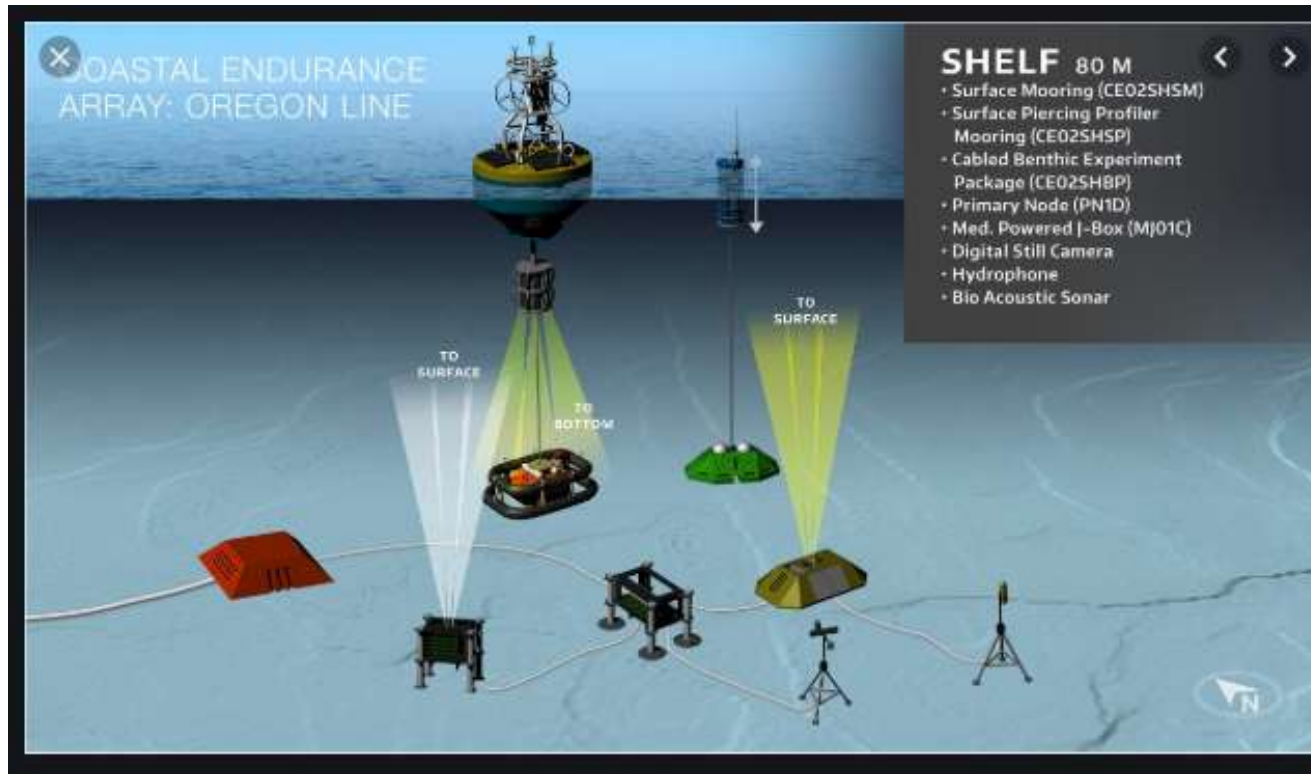


LTDavid



REGULATIONS OF
MARINE ACTIVITIES

Remote Monitoring Devices & Underwater Communication

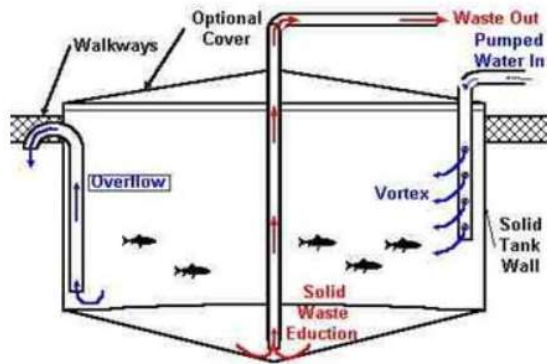


LTDavid



FORWARD THINKING
INFRASTRUCTURES
AND TECHNOLOGIES

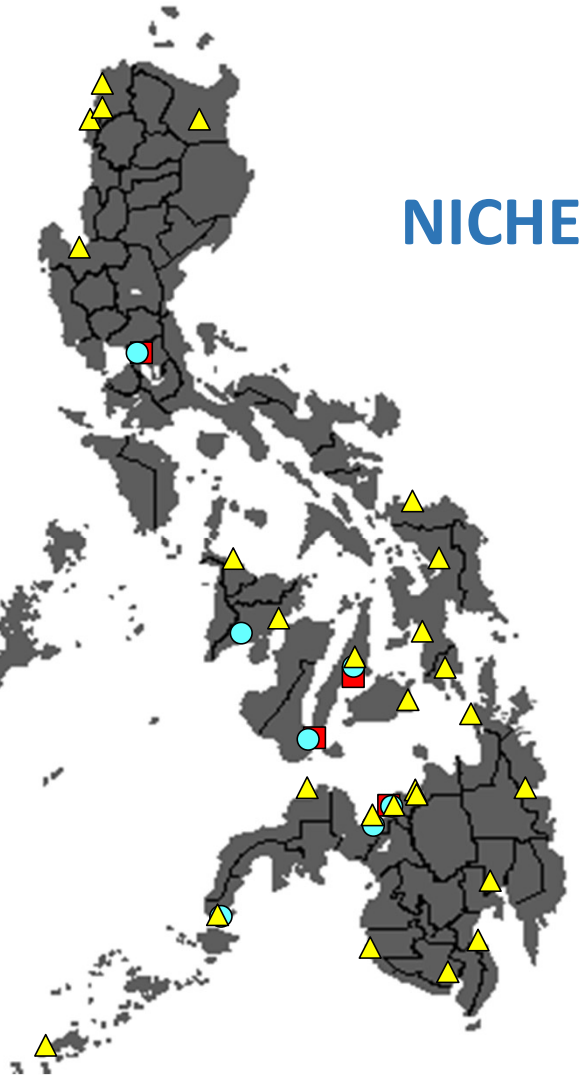
Deep-water Closed System Mariculture



LTDavid



Distribution of HEIs Offering
Marine Biology/Marine Science Programs



	Type	Reg	INSTITUTION	BS	MS	PhD
1	SUC	1	Univ Northern Phils	1		
2	SUC	1	MMSU-Currimao	1		
3	SUC	1	MMSU-Dingras	1		
4	SUC	1	PSU-Binmaley	1		
5	SUC	2	Cagayan State Univ	1		
6	SUC	4A	Palawan State Univ	1		
7	SUC	4A	PSU-Rizal	1		
8	SUC	4B	Western Phil Univ	1	1	
9	SUC	6	Aklan State Univ	1		
10	SUC	6	Iloilo State College of Fisheries	1		
11	SUC	6	Univ of the Phil-Visayas		1	
12	Pri	7	Univ of San Carlos	1	1	1
13	SUC	7	Bohol Island State University - Candijay	1		
14	Pri	7	Silliman Univ		1	1
15	SUC	8	Samar State University - Mercedes	1		
16	SUC	8	Southern Leyte State University-Bontoc	1		
17	SUC	8	University of Eastern Philippines	1		
18	SUC	8	Visayas State University	1		
19	SUC	9	Zamboanga State College of Marine Science and Tech	1	1	
20	SUC	9	Jose Rizal Mem State Univ	1		
21	SUC	9	MSU-Tawi-Tawi	1		
22	SUC	10	MSU-Iligan Inst of Tech	1	1	
23	SUC	10	Mindanao State Univ at Naawan	1	1	1
24	Pri	10	Xavier Univ	1		
25	SUC	10	USTSP-Panaon	1		
26	SUC	11	Southern Phil Agri- Buss and Marine and Aquatic School Of Technology	1		
27	SUC	11	Davao Del Norte State Coll	1		
28	SUC	12	MSU-General Santos	1		
29	SUC	12	Sultan Kudarat State University - Kalamansig	1		
30	SUC	CAR	Surigao Del Sur State University - Lianga	1		
31	SUC	CAR	Surigao State College of Technology - Malimono	1		
32	SUC		NCR Univ of the Phil-Diliman		3	3
TOTAL PROGRAMS				29	10	6

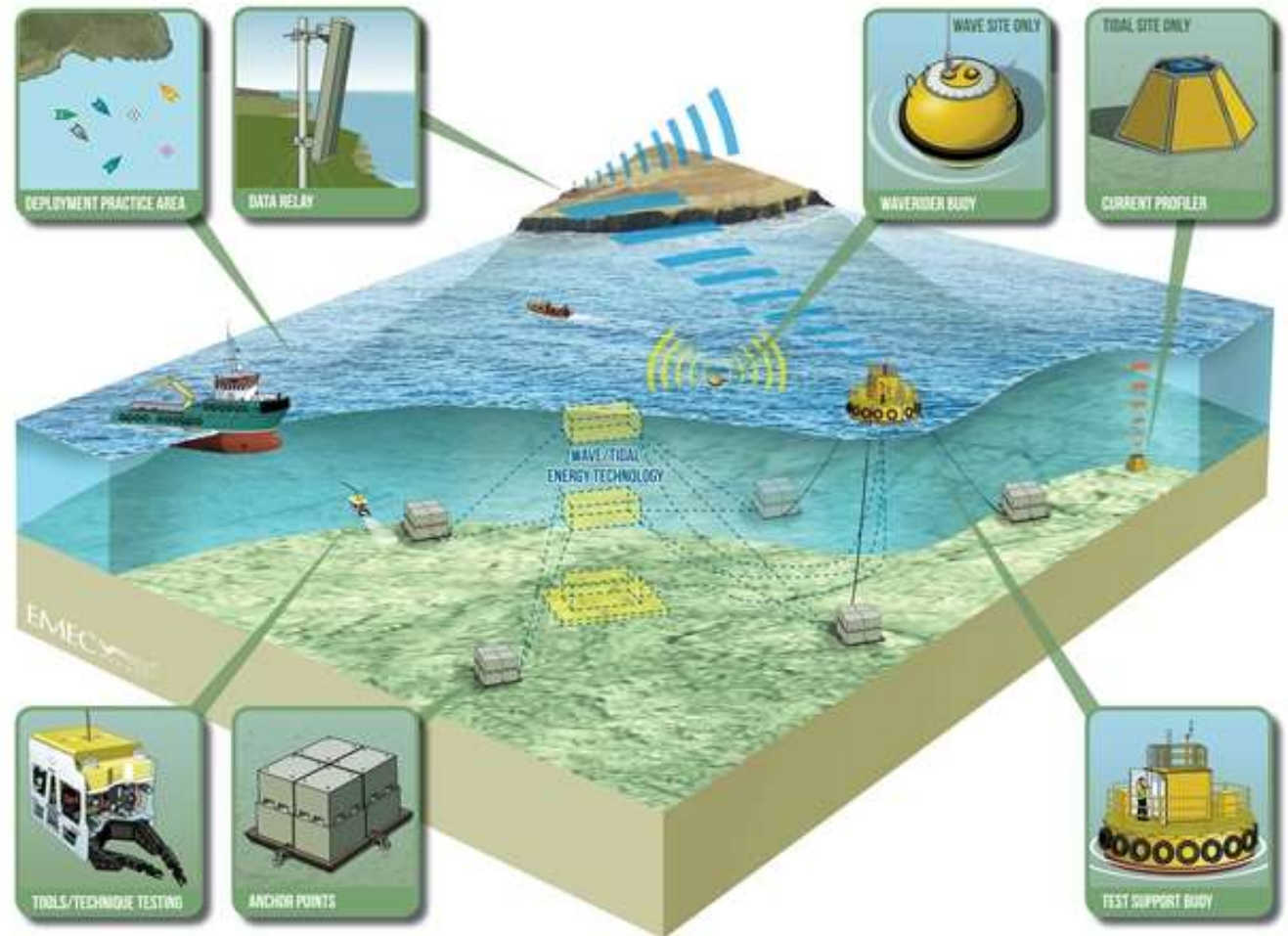
Marine Innovative Technology Testing Center

Marine Biotech/Chemistry labs

Biodiversity research museums

Macrocosm tank laboratories

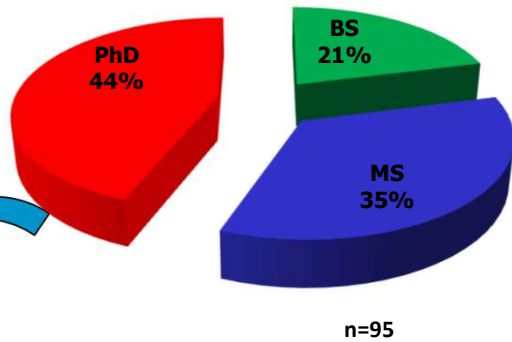
Marine Technology Testing Center



LTDavid

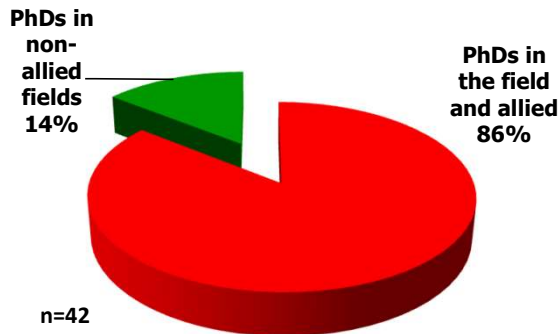


Distribution of Faculty by Level of Profile



n=95

Distribution of PhDs

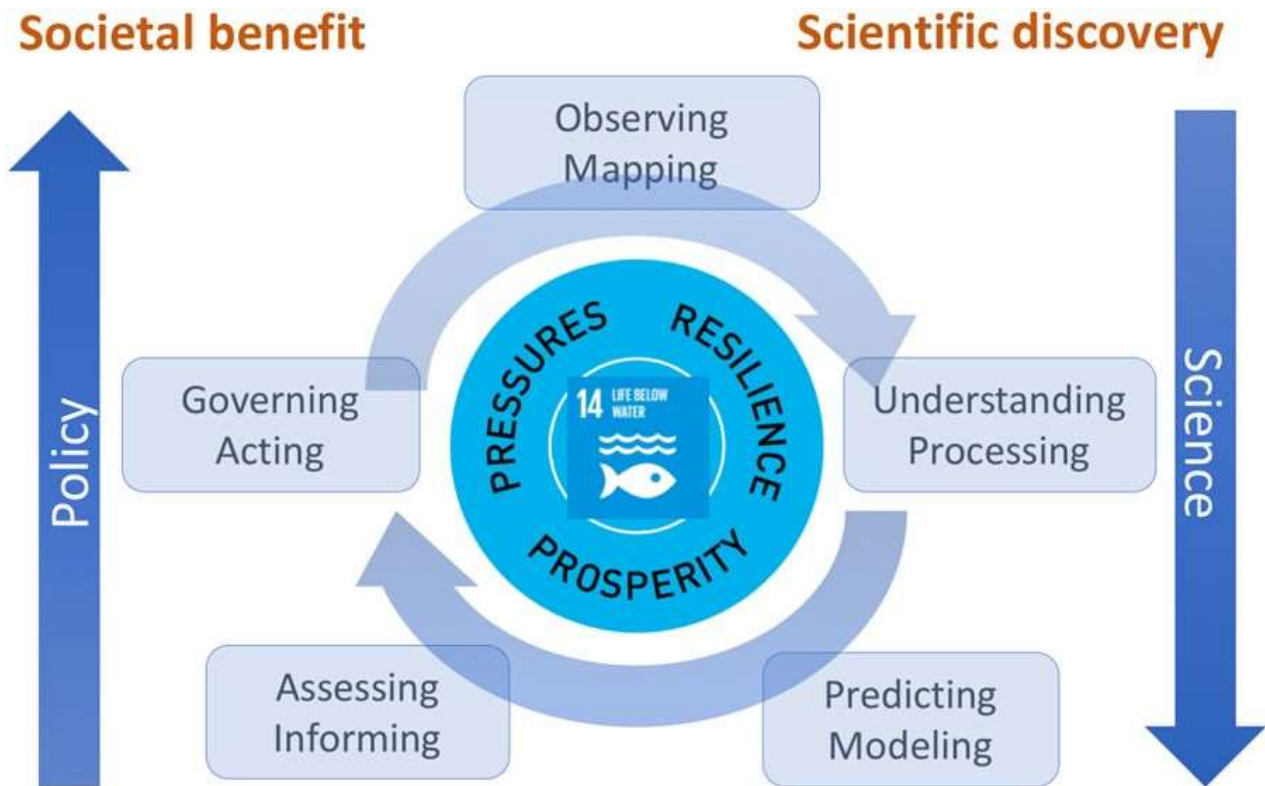


n=42

Note: Total Faculty Data obtained from 10 HEIs only.

➤ faculty profile enhancement and availability of positions for returning

Asst. Prof. II	16	Master's Degree	4 years of relevant experience + VS Performance Rating	20 hours of relevant training	- Local - Unpublished Research - Action/ Applied Research in Any Discipline	- Outreach Program - Participative	None required; RA 1080 (for courses requiring BAR or BOARD eligibility)
Associate Professor I	19	MA	5 years of relevant experience + VS Performance Rating	30 hours of relevant training	Community-Based Action Research Published Research	Civic Welfare Service	None required; RA 1080 (for courses requiring BAR or BOARD eligibility)
Professor I	24	Doctoral Degree	8 years of relevant experience + VS Performance Rating	40 hours of relevant training	Scientific, Educational, Technical, Technological Research	Significant Contribution to Community Development	None required; RA 1080 (for courses requiring BAR or BOARD eligibility)



M. Visbeck. Nature Communications Volume 9, Article number: 690 (2018)