

# STATE OF THE UNIVERSITY ADDRESS

Prof. Dr. Kenneth Matengu, Vice Chancellor

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## IS NAMIBIA POOR?

Our Role Now and in the Future as a Developmental University



# *In Loving Memory*



Martin Sikanda  
18/02/2023



Fillemon Ngula  
03/04/ 2023



Diana Mouton  
19/05/2023



Eufemia Shaanika  
15/08/2023



Holger Sommer  
25/08/ 2023



Magriet Mainga  
22/09/ 2023



Gert Van Rooy  
07/10/2023

## Why do we exist...?

• ...*“to provide higher education, to undertake research, to advance and disseminate knowledge, to provide extension services, to encourage the growth and nurturing of cultural expression within the context of the Namibian society, to further training and continuing education, to contribute to the social and economic development of Namibia and to foster relationships with any person or institution, both nationally and internationally”*. UNAM Act # 18 of 1992, Section 4

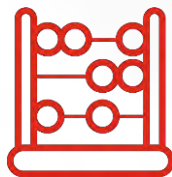
### Graduate Increased Output



2015  
2 879 Students

2022  
4 502 Students

### Student Statistics 1992 - 2022



1992	2022
3 639 Enrolled	28 467 Enrolled
601 Graduates	4 502 Graduates

### Staff compliment 1992 - 2022



1992	2022
258 Professional Support	879 Professional Support
64 Academic	1651 Academic

### Scopus Scholarly Output



1992  
7 Publications

2015  
150 Publications

2021  
310 Publications

### Professorship



1992	2022
4 Female	23 Female
26 Male	73 Male

### PHD's

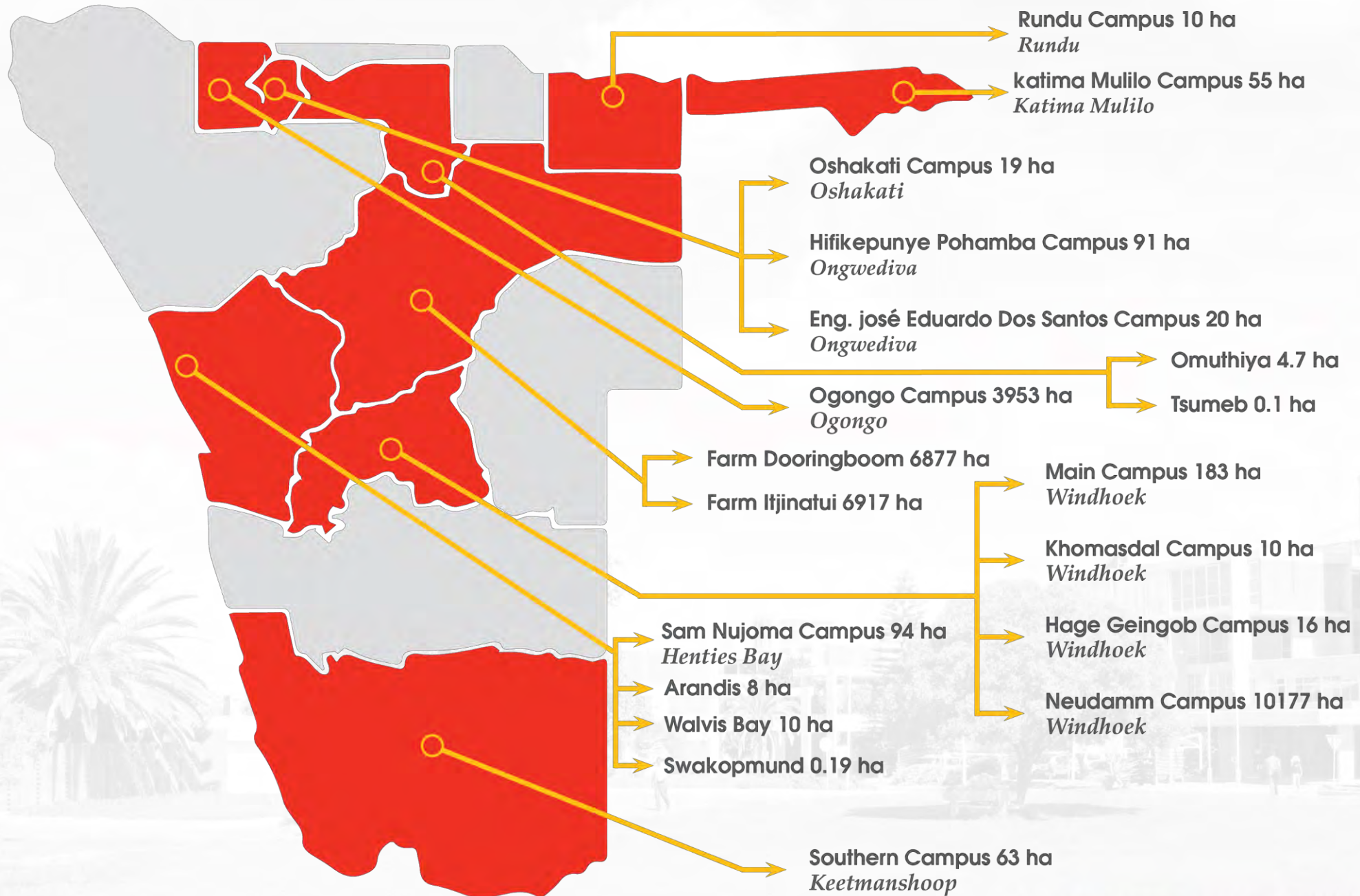


1992	2022
12 Female	119 Female
20 Male	186 Male

## Our Mandate

*“To provide higher education, Undertake research, advance and disseminate knowledge to provide extension services, to encourage the growth and nurturing of cultural expression within the context of the Namibian society to further training and continuing education, contribute to social and economic development of Namibia, and to foster relationships with any person or institution both nationally and internationally”*  
*Section 4 of the University of Namibia Act 18 of 1992*

# DISTRIBUTION OF UNAM LAND



# STRATEGY OVERVIEW: MANDATE, MISSION, VISION AND VALUES



## VISION STATEMENT

To be a sustainable international hub of excellence in higher education, training, research and innovation by 2030.



## MISSION STATEMENT

To contribute to the achievement of national and international development goals through the pursuit of translational research, quality training and innovation.



Professionalism



Accountability

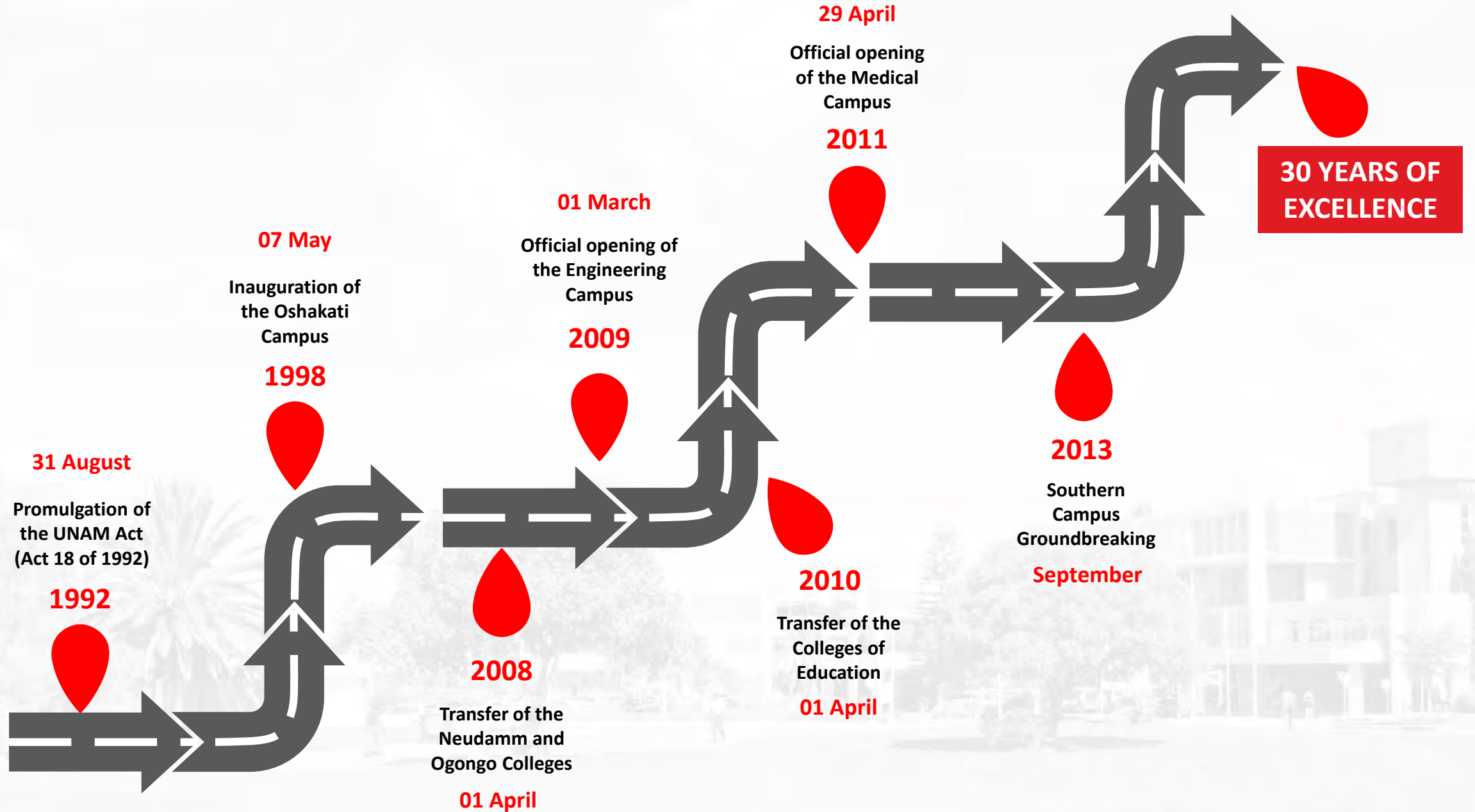
## OUR VALUES



Integrity



Equity





# How are we Governed?

Effectiveness in HEI Governance entails balancing

## “Hard Governance”

Designing structures, policies and processes for impact

## “Soft Governance”

Designing climates and cultures for enhanced productivity



# Council



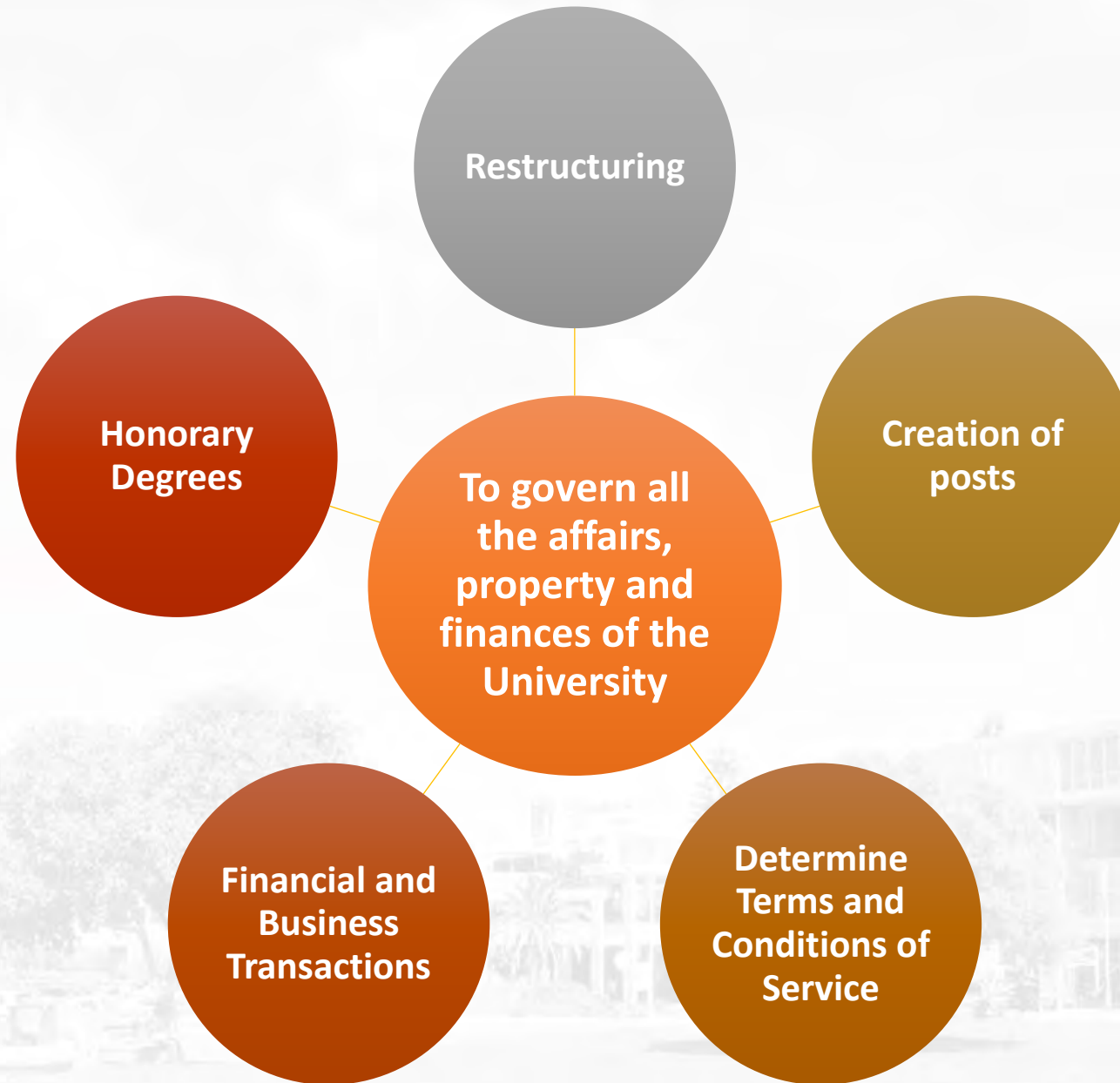
# Senate

**Globally, in any University, there are benefits when these structures are present, and there are costs when they are lacking**



# Council

## Powers and Functions



## Statutes



**Council**

# Council Appointees



**CHANCELLOR**

**VICE-CHANCELLOR**

**PRO VICE-CHANCELLORS**

**REGISTRAR**

**UNIVERSITY LIBRARIAN**

**BURSAR**

**6 years**

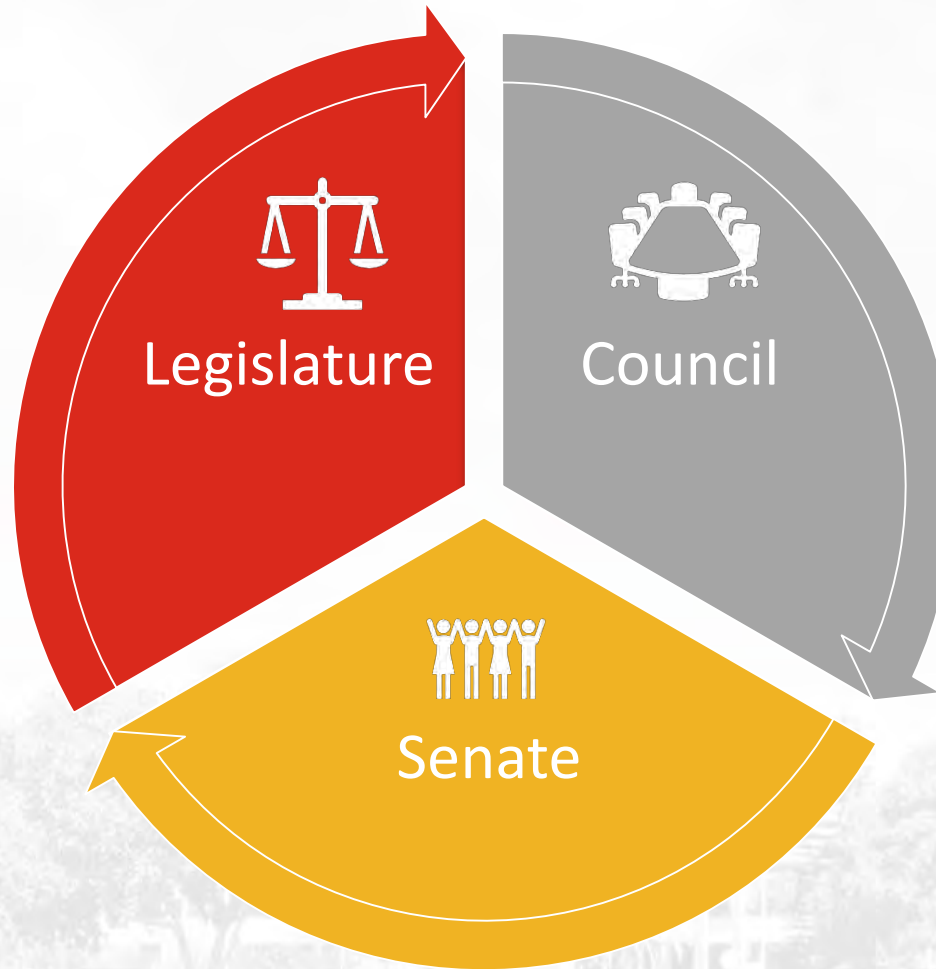
**5 years**

**Independent Search  
Committees**

# STRATEGY OVERVIEW: THE UNIVERSITY OF NAMIBIA ACT, 1992

The University of Namibia Act: Section 3, 23

- Power to sell, borrow, lend, invest, grant real rights
- Chancellor, Council, Senate, Vice-Chancellor, Pro-Vice Chancellors, staff (academic and administrative) and students
- Minister grant subsidies to UNAM as agreed



- Executive authority of UNAM
- The powers, procedures and quorum of Council and its meetings are contained in the Statutes and Regulations (Committee System) of UNAM

- The organisation and superintendence of instruction, examination, lectures, classes, curricula and research is vested in Senate
- Senate can make recommendations to Council and should submit reports to Council as Council may require. There may be joint Committees of Council and Senate

# How will we achieve our University's Mission, Vision and Strategy?

## → Five Strategic Themes:

1. Institutional Sustainability;
2. Transformative Research, Innovation and Enterprise development;
3. Higher Education Graduate Employability;
4. Community Engagement, Social Relevance and Environmental Sustainability; and
5. Institutional Planning and Internationalization.

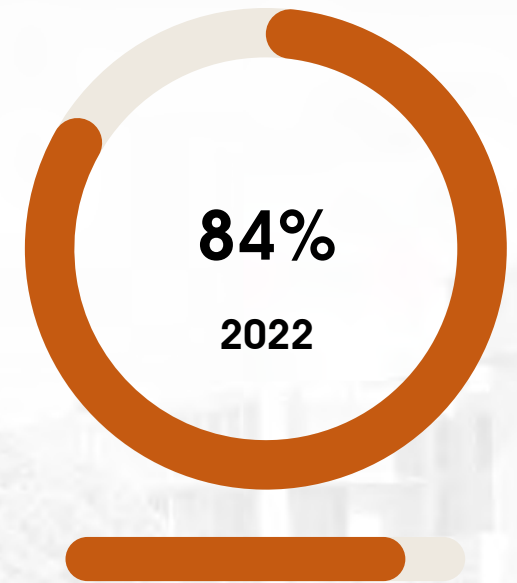
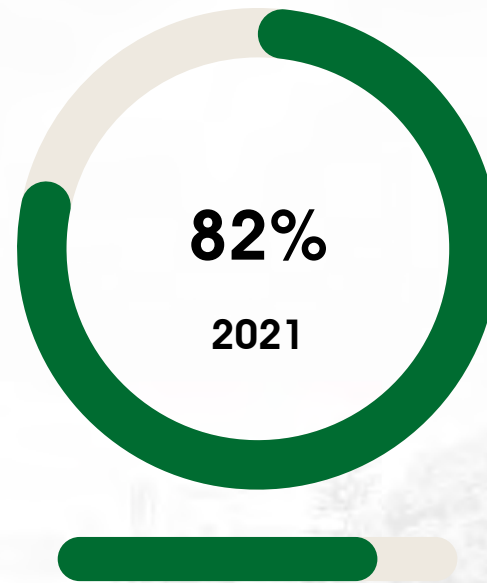
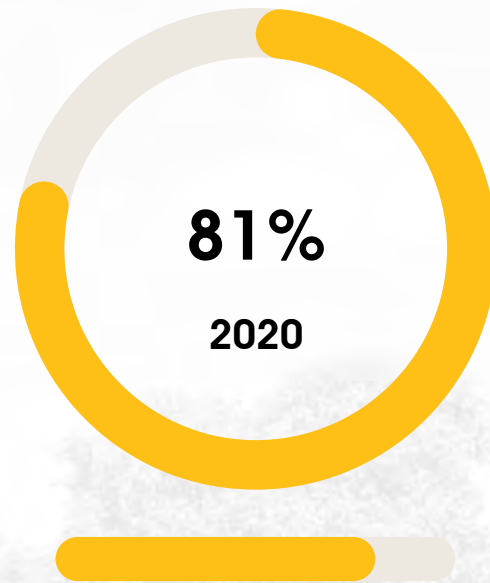
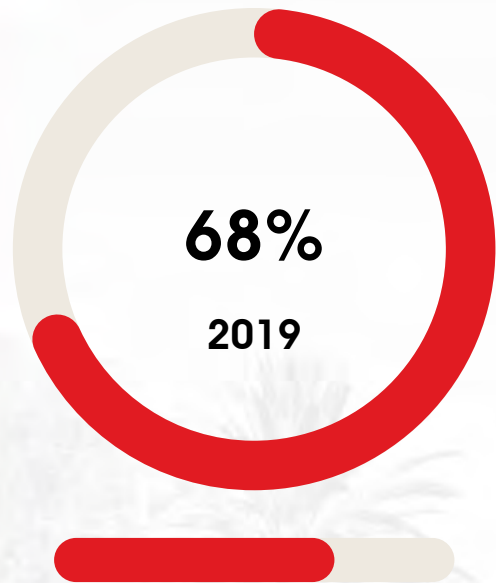
→ Institutional strategic objectives are cascaded into three year divisional business plans.

→ Divisional business plans are cascaded into annual management plans.

## → Scorecard matrix has

- 16 objectives,
- 26 Key performance indicators
- 76 prioritized strategic initiatives

# Overall Institutional Performance 2019 - 2022



Based on datasets addressing our strategic themes and objectives

# Our Contribution to **Namibia's** Human Resources Development

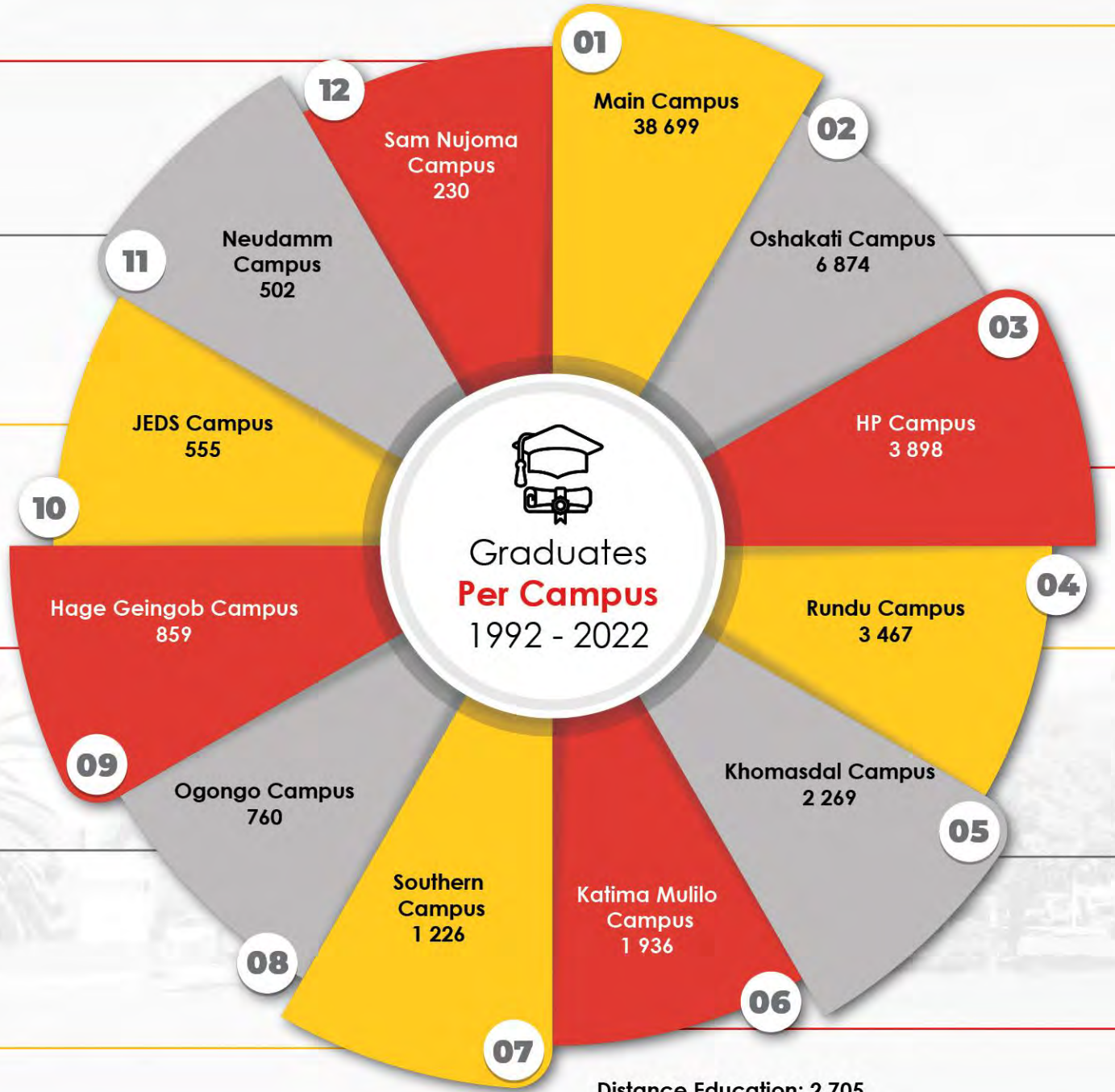
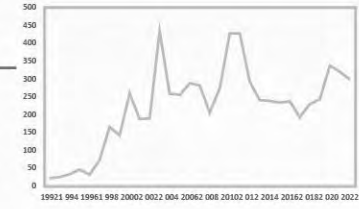
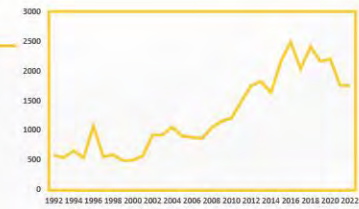
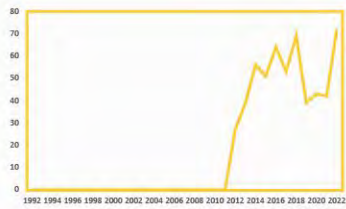
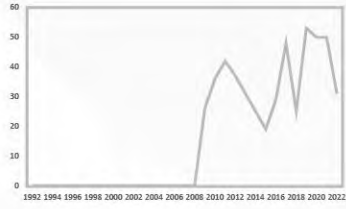
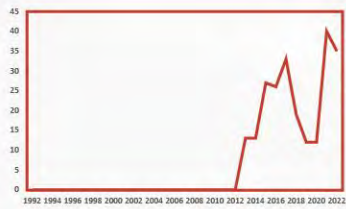


# What Do We Do?

- We train excellent doctors
- We train exceptional pharmacists
- We train outstanding dentists
- We train dedicated Vets (including Wildlife Vet Med)
- We train first-rated nurses, & public health professionals, & allied health professionals
- We produce learned practitioners for the justice system
- We educate the majority of Namibia's teacher & educators
- We train economists, bankers, accountants etc who man our economy
- We train scientists, researchers from geologists, chemists, physicists, astronomers etc to push the frontiers of science

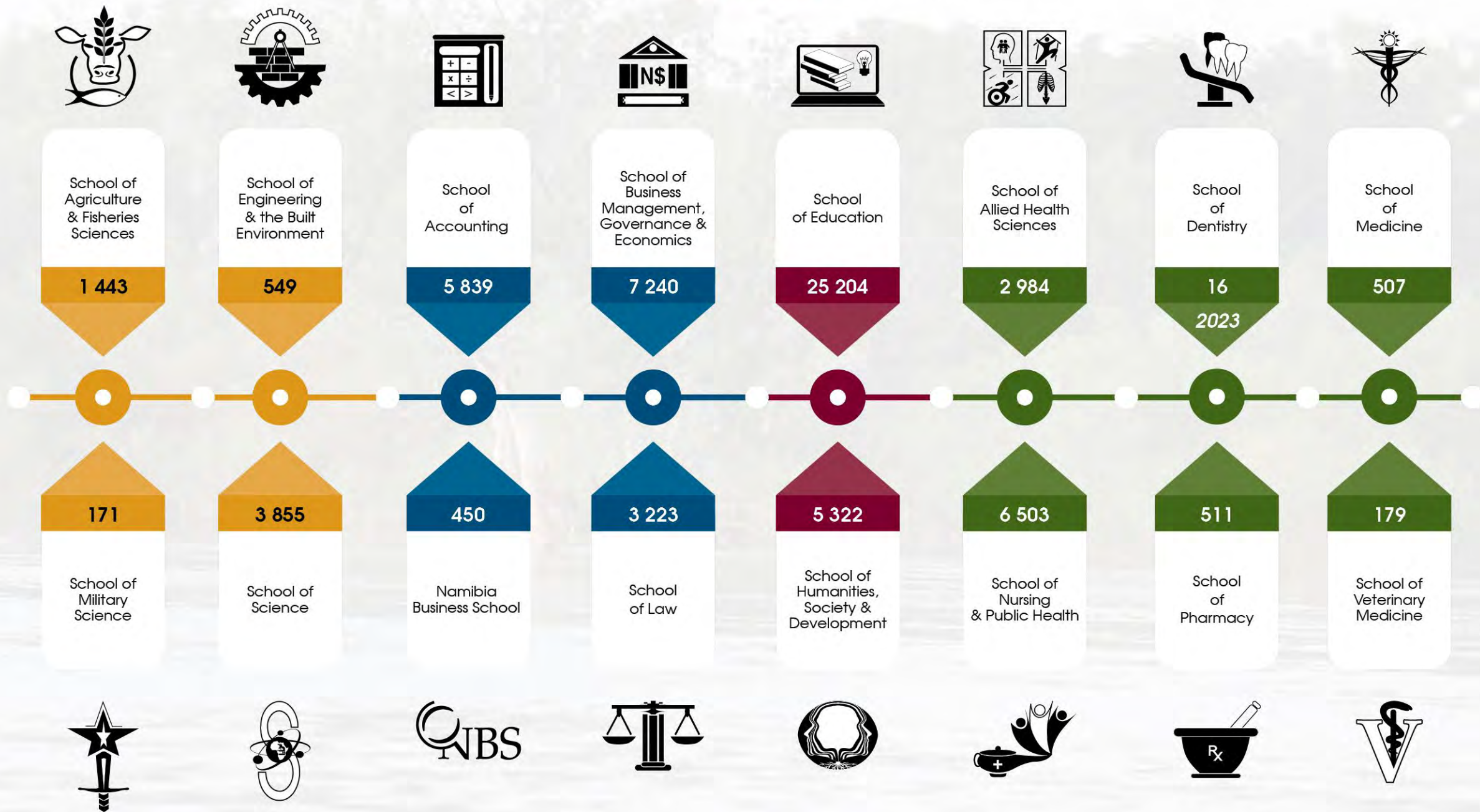


**Graduates  
Per Campus  
1992 - 2022**

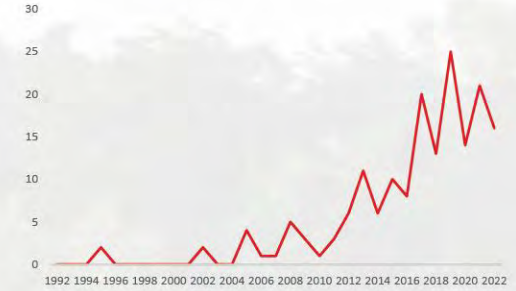
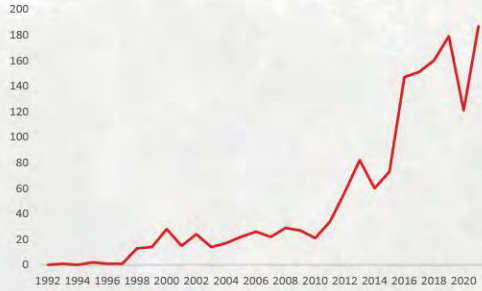


**Distance Education: 2 705**

# Graduates **Per School** 1992 - 2022

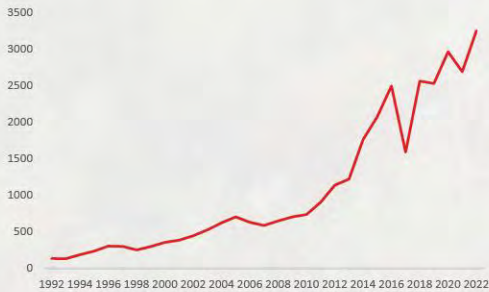


# Graduates Per Qualification 1992 - 2022



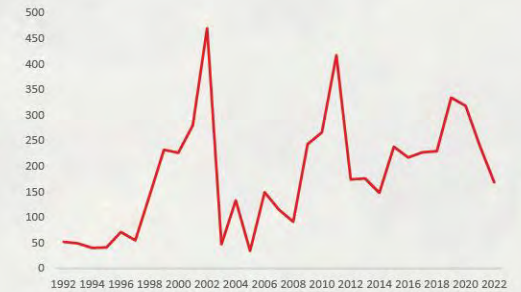
**MASTERS**  
**1 709**

**DOCTORATES**  
**172**



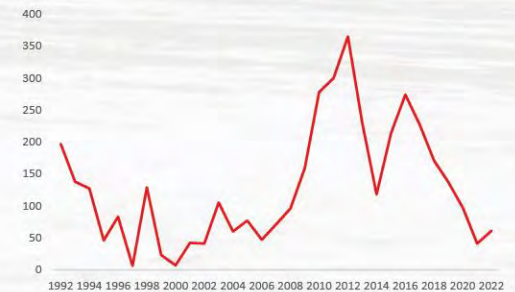
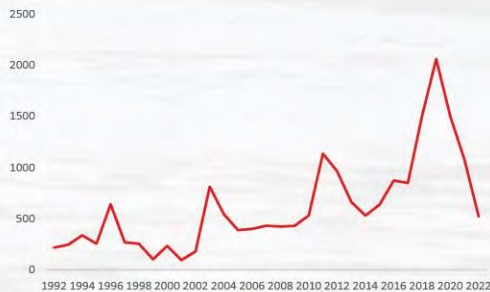
**BACHELOR HONOURS**  
**33 415**

**POSTGRAD DIPLOMAS**  
**5 622**



**DIPLOMAS**  
**19 095**

**CERTIFICATES**  
**3 967**



# Graduates **by Gender** 1992 - 2022

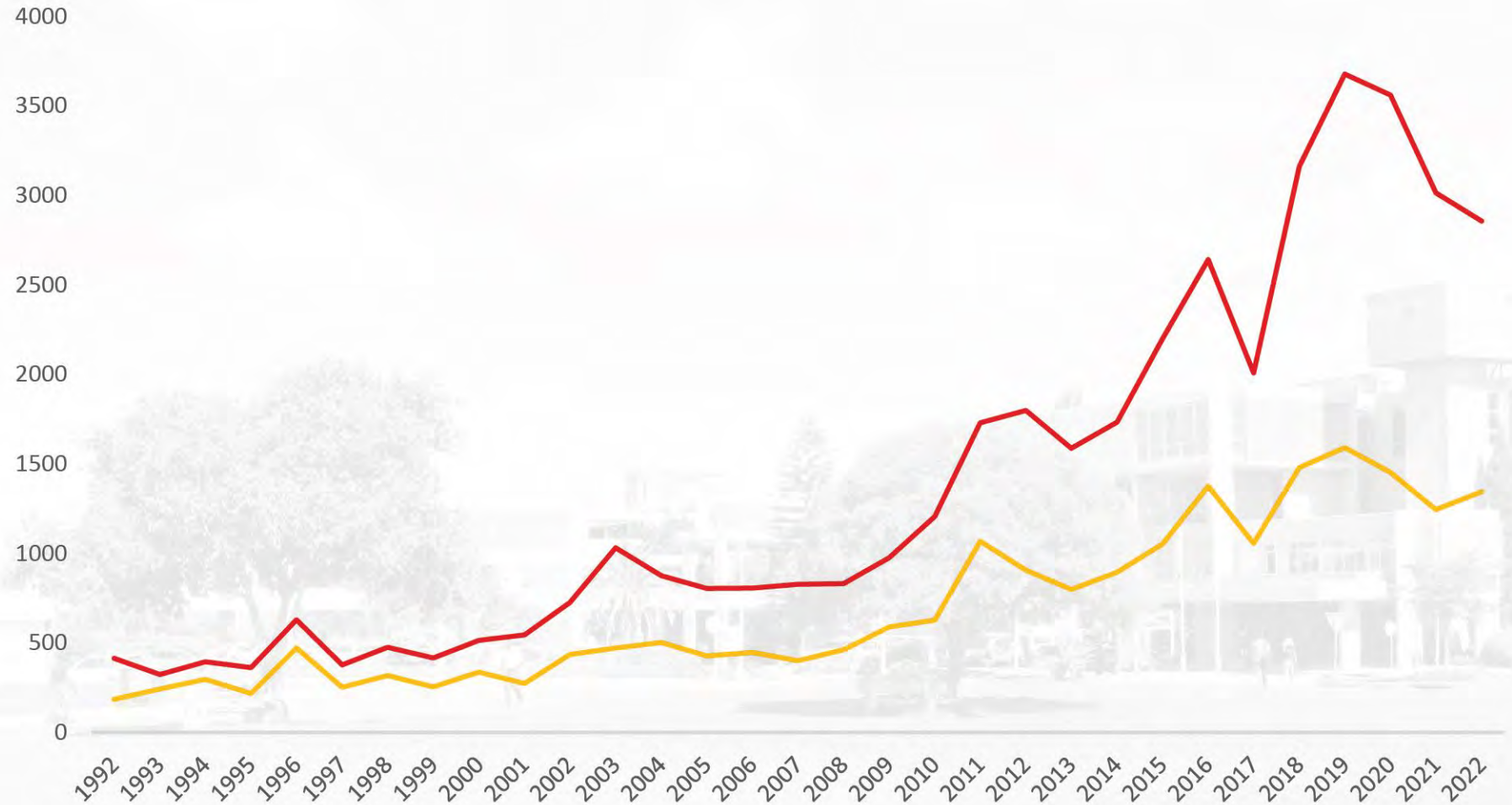
## FEMALE GRADUATES

**66% | 42 507**



## MALE GRADUATES

**34% | 21 573**



# Graduates **by Student Type** 1992 - 2022



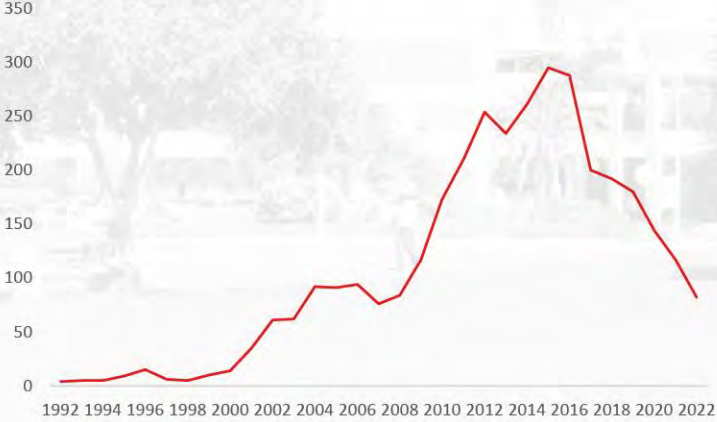
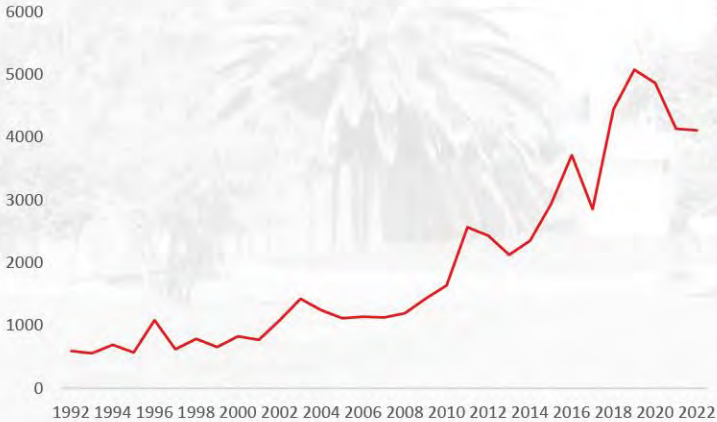
**NAMIBIAN GRADUATES**  
**60 221**



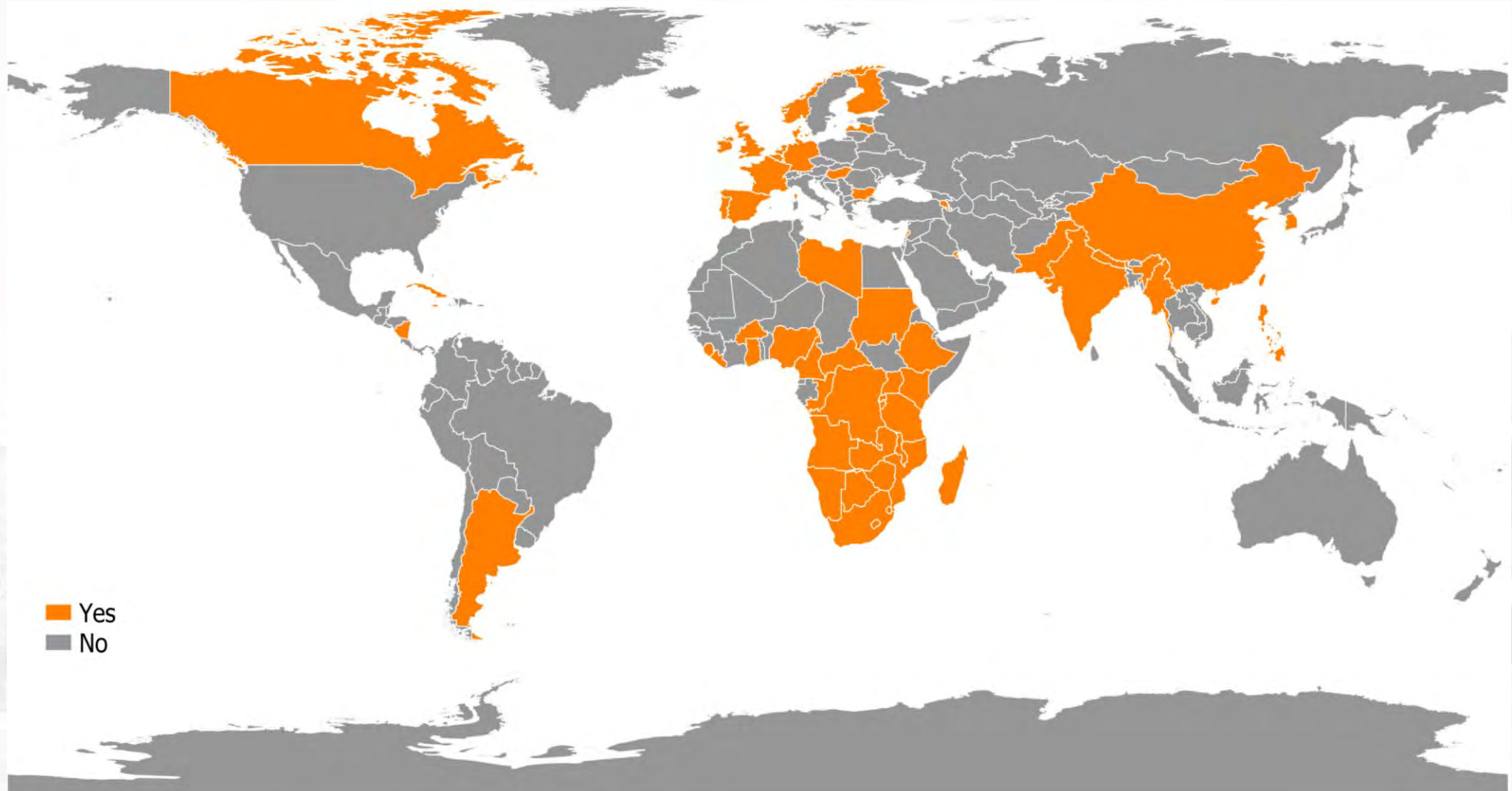
**SADC GRADUATES**  
**3 415**



**NON-SADC GRADUATES**  
**353**



# Our Global Human Resources Impact



# Research and Publications

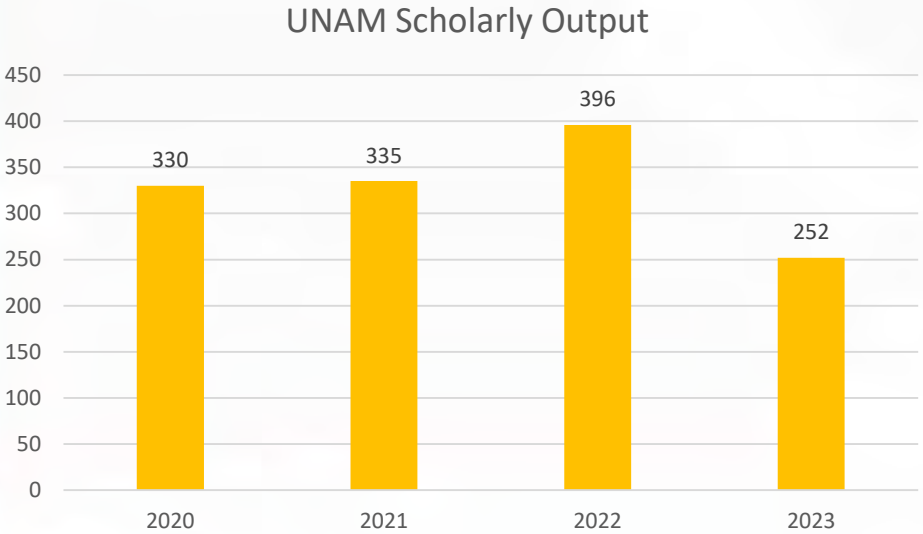


Figure 1. SciVal Research output (Source: SciVal database)

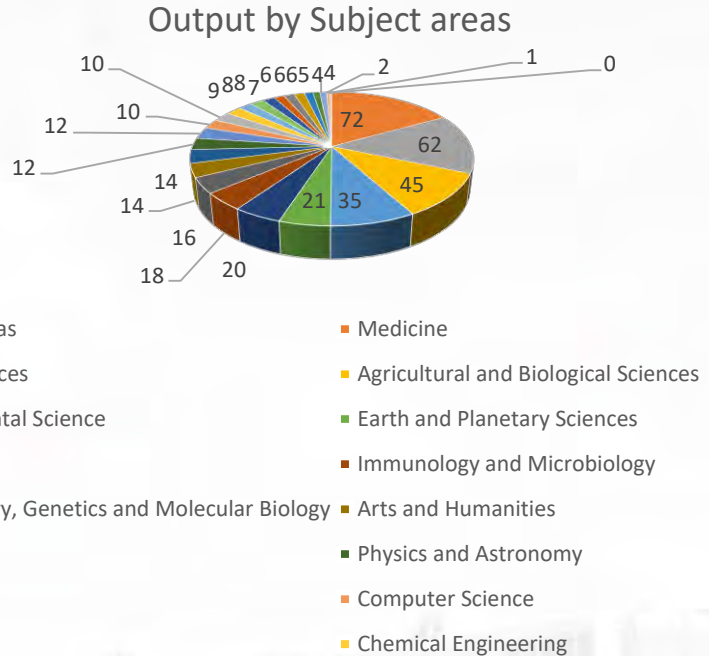
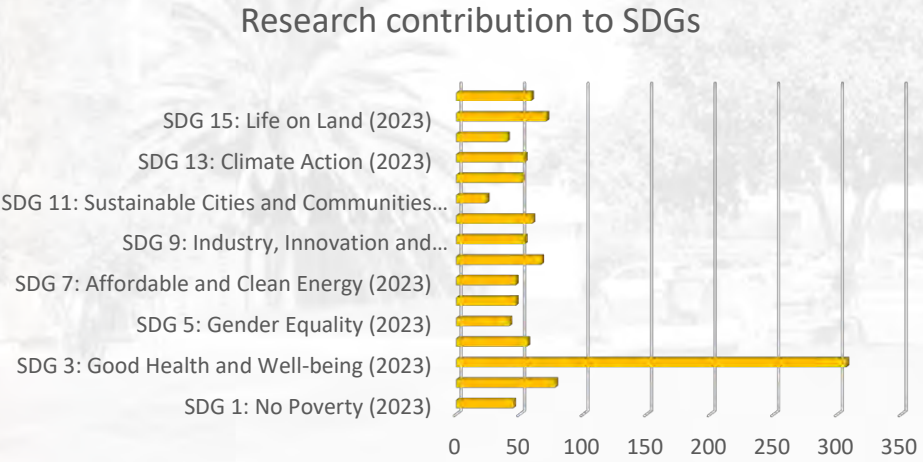
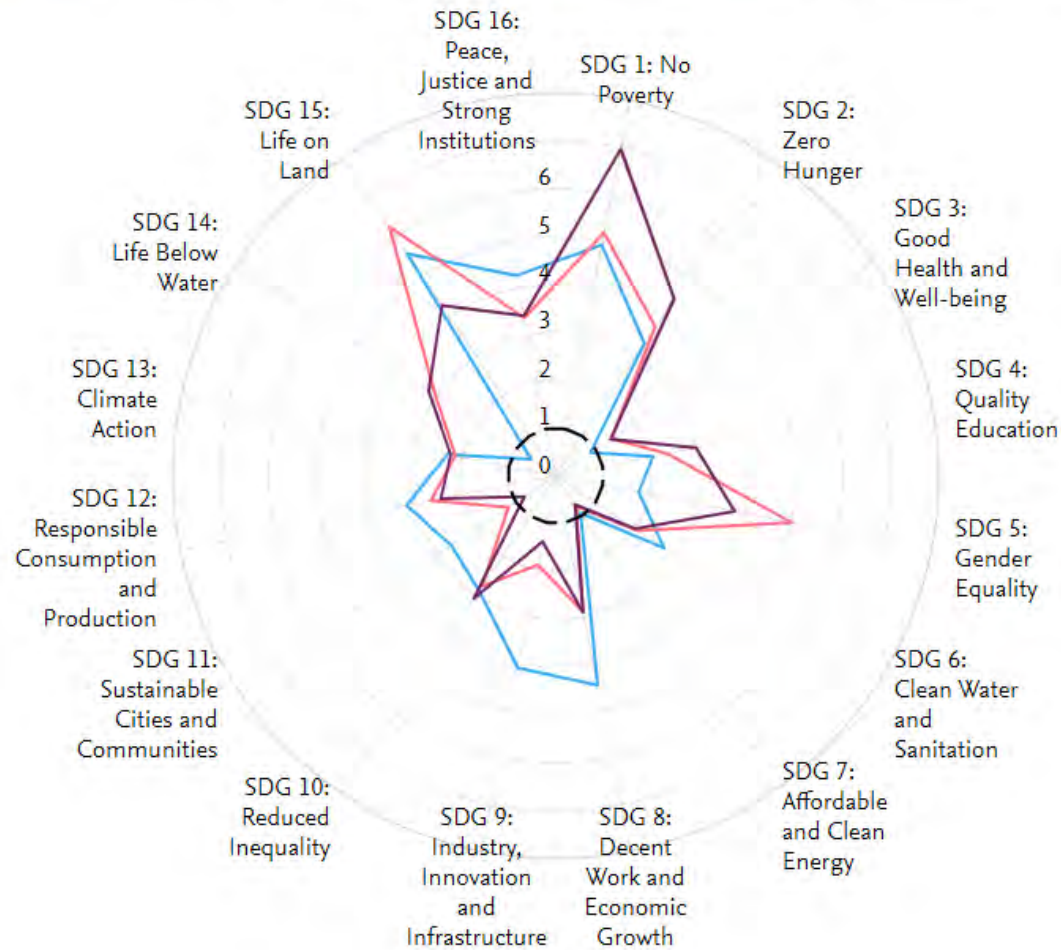


Figure 2. Output for 2023, by subject area (Source: SciVal database)



# Research and Publications

— Namibia University of Science and Technology — Namibia — University of Namibia — World



Policy Body	Policy Body Type	Country/Region	Citing Policy Documents
World Health Organization	Intergovernmental Organisation	Intergovernmental	14
Food and Agriculture Organization of the United Nations	Intergovernmental Organisation	Intergovernmental	7
International Development Research Centre	Think Tank	Canada	6
OECD	Intergovernmental Organisation	Intergovernmental	5
CGIAR	Think Tank	France	4
United Nations	Intergovernmental Organisation	Intergovernmental	4

Publication output by Faculty

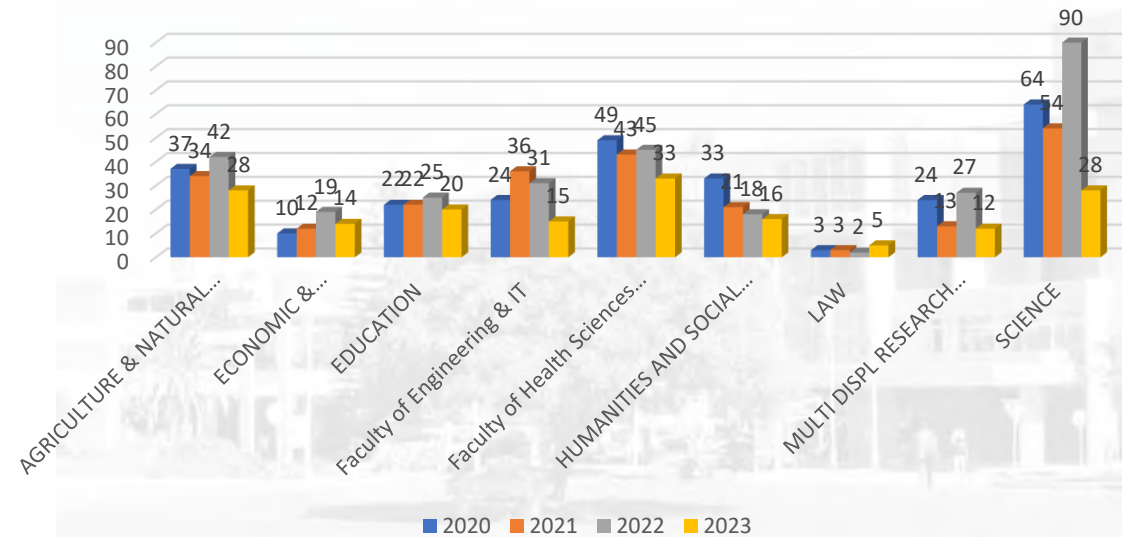
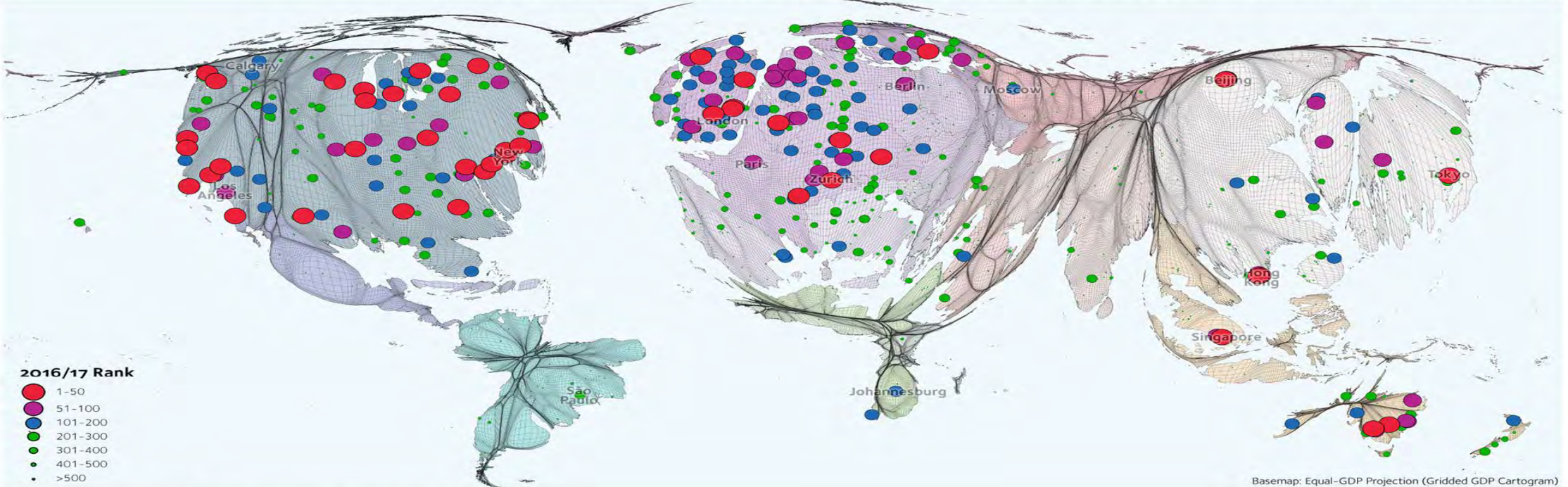


Figure 4. Publications distribution by faculty (Source: SciVal)



UNAM is ranked 16<sup>th</sup> in the top 100 Universities in Africa

**THE WORLD UNIVERSITY RANKINGS IN A WORLD ADJUSTED FOR NATIONAL WEALTH**



Ben Hennig at [www.viewsoftheworld.net](http://www.viewsoftheworld.net)

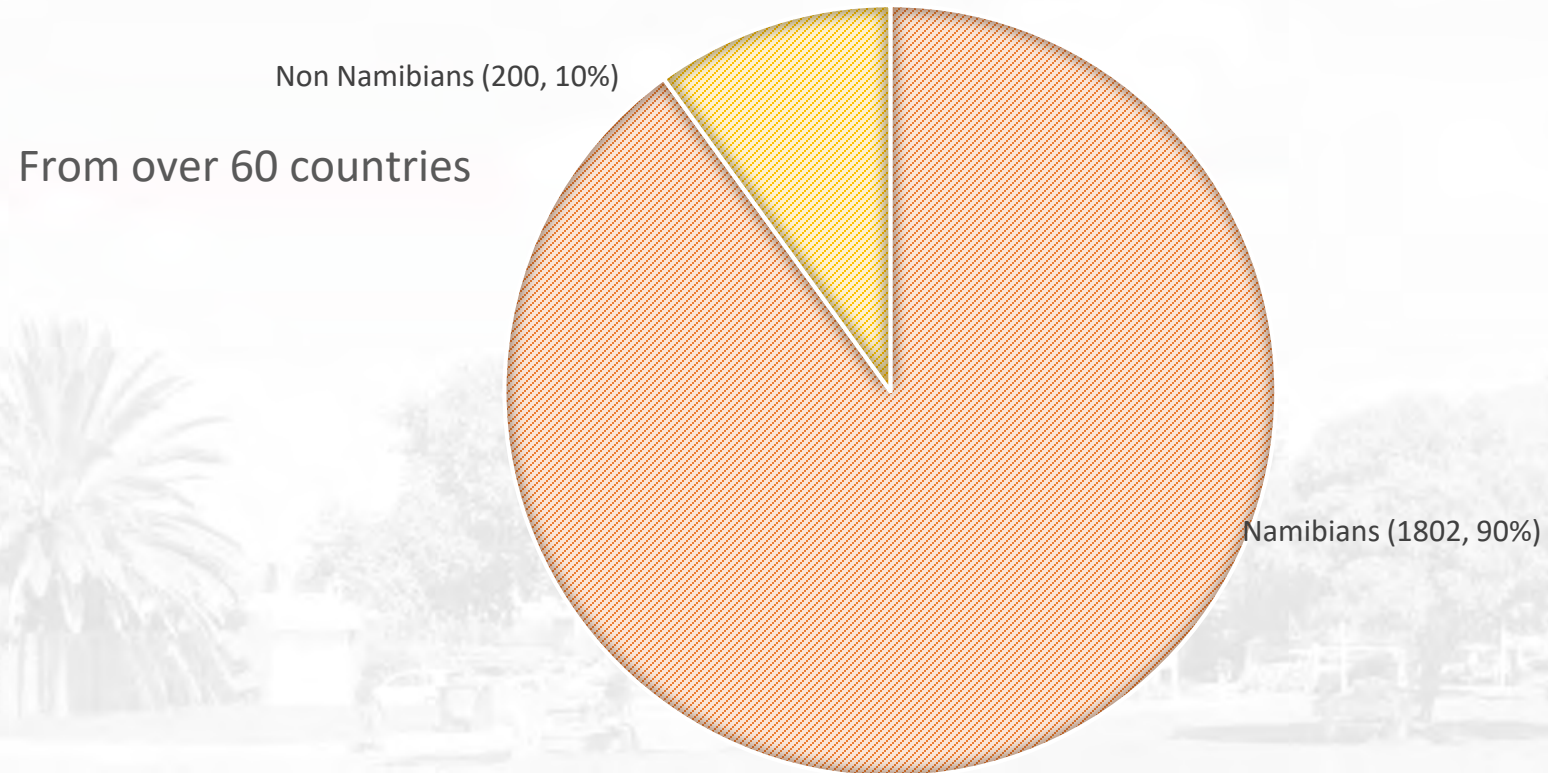


[www.thewur.com](http://www.thewur.com)

# We are true to the Universality of a HEI

## Over 250 active international partnerships

■ Namibian ■ Non-Namibian



# Research Areas In Response to National Challenges

Selected Impactful Projects



# UNAM - NAB SEED PROJECT (2021 - 2024)

Maize, Wheat, Potatoes and  
Pearl Millet (Mahangu), Seseme Seeds



# New Potato and Wheat varieties

NAB-UNAM SEED PROJECT (2021 – 2025)

School of Agriculture & Fisheries Sciences

Faculty of Agriculture, Engineering and Natural Sciences



# Ji Zhang Potato growing at Neudamm - 2022



Ji Zhang Potato  
From Zhang Jia Kou Academy of Agricultural  
Sciences (ZAAS) a public sector potato  
institution in China (non-GMO).

Ji Zhang Potato growing at  
E. Shikongo - 2023



# Ji Zhang Potato growing at Neudamm - 2022



Ji Zhang Potato harvested at  
E. Shikongo - 2023



Ji Zhang Potato Seed stored at  
E. Shikongo - 2023



# Wheat growing at E. Shikongo Correctional Facility - 2023





# Wheat growing at Divundu Correctional Facility - 2022



# Wheat ENTRY 605 harvested in Mashare PTY- 2022



# Elite Wheat Lines from CIMMYT - Namibia

No.	Entry	Cid	Sid	GID	Cross	Selection_History	S_Abbrebration	S_Ent	S_Loc_Cyc	Grain color
1	607	583469	38	7631846	KACHU//WBLL1*2/BRAMBLING/3/KACHU/KIRITATI	CMSS12Y00241S-099Y-099M-0SY-9M-0WGY	M3NDCWYT		4 MXI19-20	White
2	615	585035	22	7632200	BORL14*2//MUNAL #1/FRANCOLIN #1	CMSS12Y00771T-099TOPM-099Y-099M-0SY-3M-0WGY	M3NDCWYT		18 MXI19-20	White
3	617	590409	26	7626425	BORL14*2/6/BABAX/LR42//BABAX*2/3/KUKUNA/4/CROS BILL #1/5/BECARD	CMSS12B00635T-099TOPY-099M-0SY-16M-0WGY	M3NDCWYT		22 MXI19-20	White
4	620	590574	88	7627411	KACHU//WBLL1*2/BRAMBLING*2/6/ROLF07*2/5/REH/HARE//2*BCN/3/CROC_1/AE.SQUARROSA (213)//PGO/4/HUITES	CMSS12B00800T-099TOPY-099M-0SY-32M-0WGY	M3NDCWYT		25 MXI19-20	White
5	625	590054	77	7729512	BECARD/QUAIU #1//ONIX/KBIRD	CMSS12B00280S-099M-099NJ-099NJ-11RGY-0B	M3NDCWYT		34 MXI19-20	Red
6	628	590779	28	7729855	BABAX/LR42//BABAX*2/3/SHAMA/4/KINGBIRD #1/5/QUAIU/6/2*COPIO	CMSS12B01005T-099TOPY-099M-099NJ-099NJ-8RGY-0B	M3NDCWYT		37 MXI19-20	Red
7	630	605931	51	8101711	CETA/AE.SQUARROSA (435)/5/2*UP2338*2/SHAMA/3/MILAN/KAUZ//CHIL/CHUM18/4/UP2338*2/SHAMA	PTSS12SHB00048T-0TOPB-099Y-099B-11Y-020Y-0B-0B	CHKS INT2020		4 MXI19-20	??
8	637	639708	56	8287885	MEX94.27.1.20/3/SOKOLL//ATTILA/3*BCN/4/PUB94.15.1.12/WBLL1/5/MUCUY	PTSS14Y00328S-0B-099Y-099B-19Y-020Y	CHKS INT2020		17 MXI19-20	??
9	605	520792	37	6175067	NADI #2	CMSS06B00734T-099TOPY-099ZTM-099Y-099M-13WGY-0B	M3NDCWYT		27 MXI19-20	White



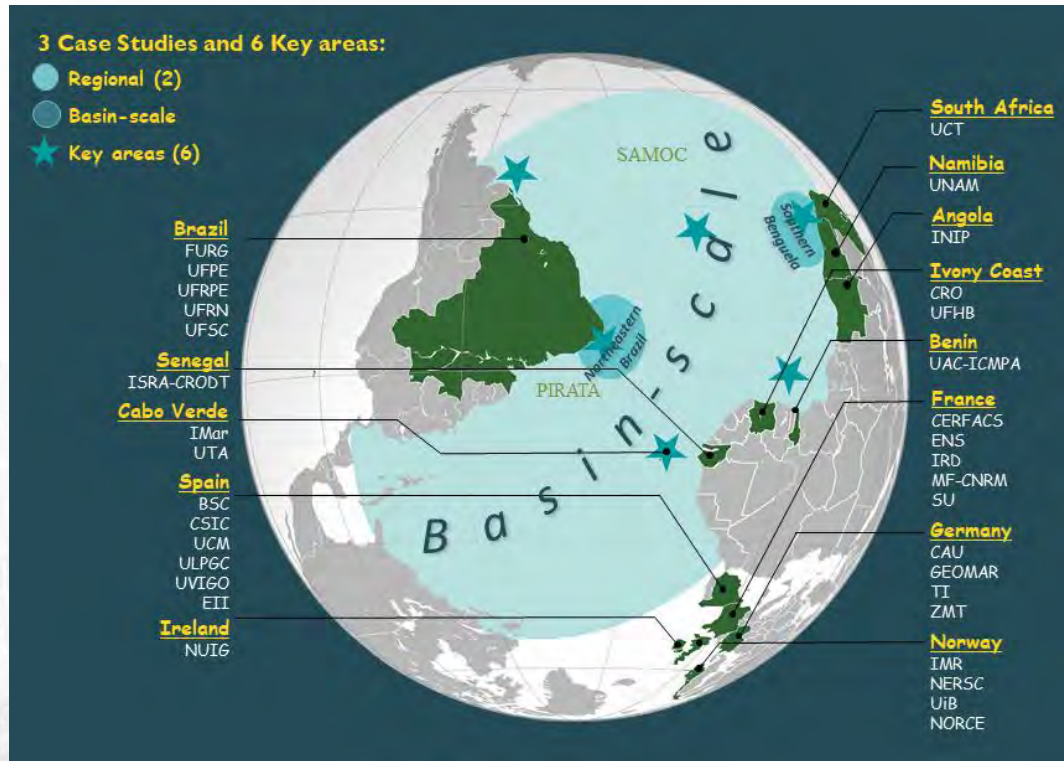
# UNAM – International Research Network our contribution to the blue economy



Noel Keenlyside (UiB), Faye Brinkman (UNAM), Abdoulaye Sarre (CRODT), Serge Tomety (UCT)

See longer messages at [www.triatlas.eu](http://www.triatlas.eu)

34 partners from 13 countries (Africa, Brazil, EU)



Predicting marine ecosystem shifts and their societal impacts.

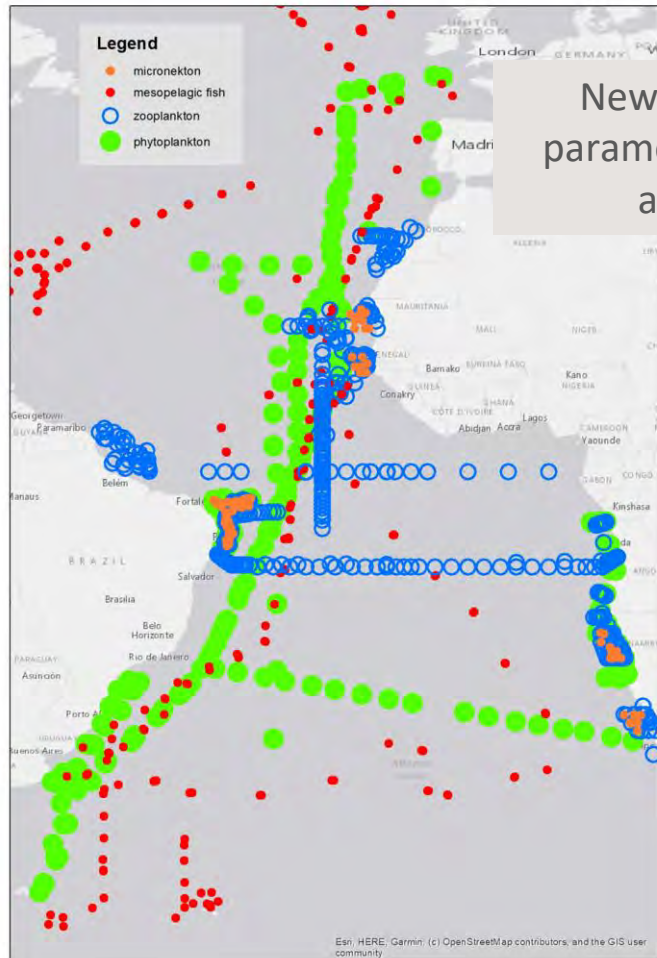
Building an Atlantic climate and marine ecosystem research community



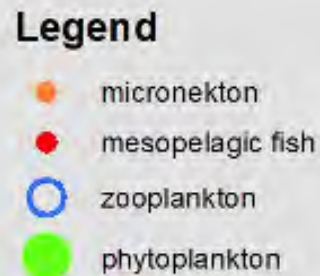
TRIATLAS receives funding from the EU Horizon 2020 research and innovation programme (grant no. 817578)

# Understanding impacts on marine ecosystem requires interdisciplinary observations

Data from physical, ecological and social systems is required



New database of biological parameters across the Atlantic, across trophic levels



Heino Fock,  
Thünen Institute



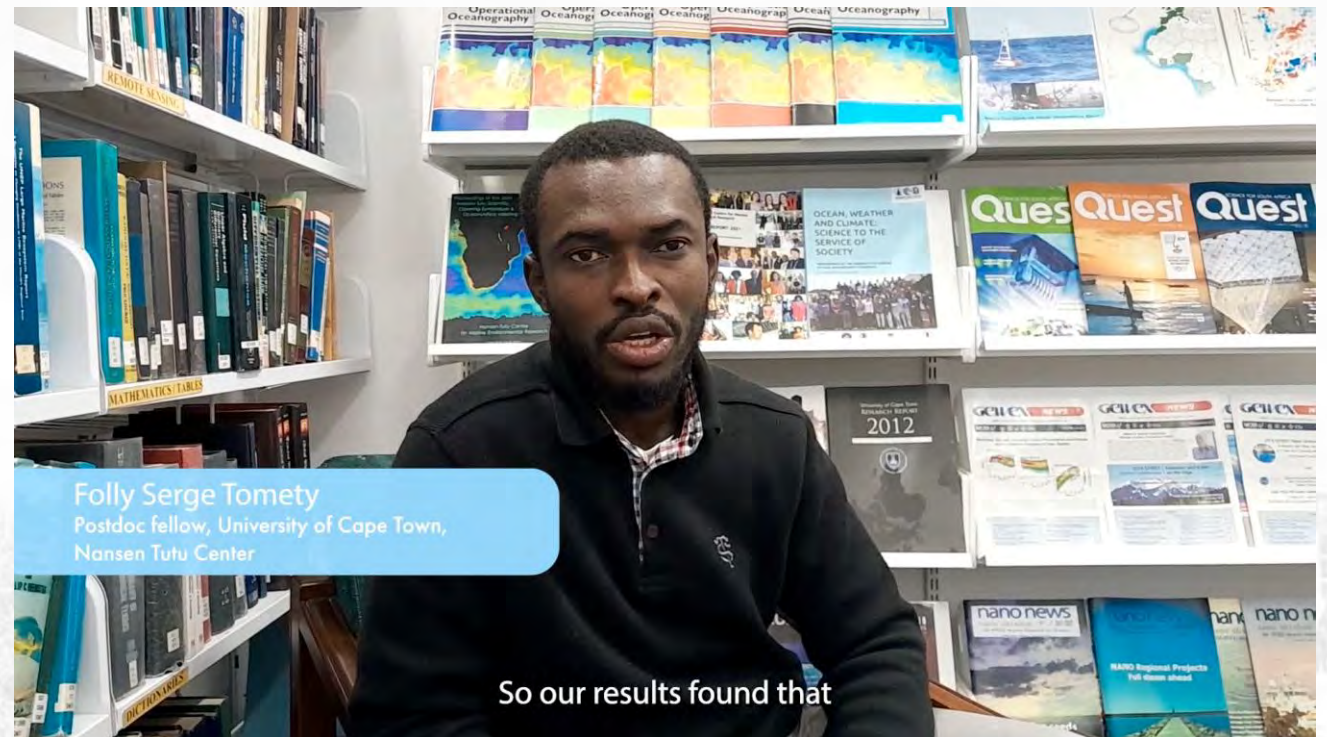
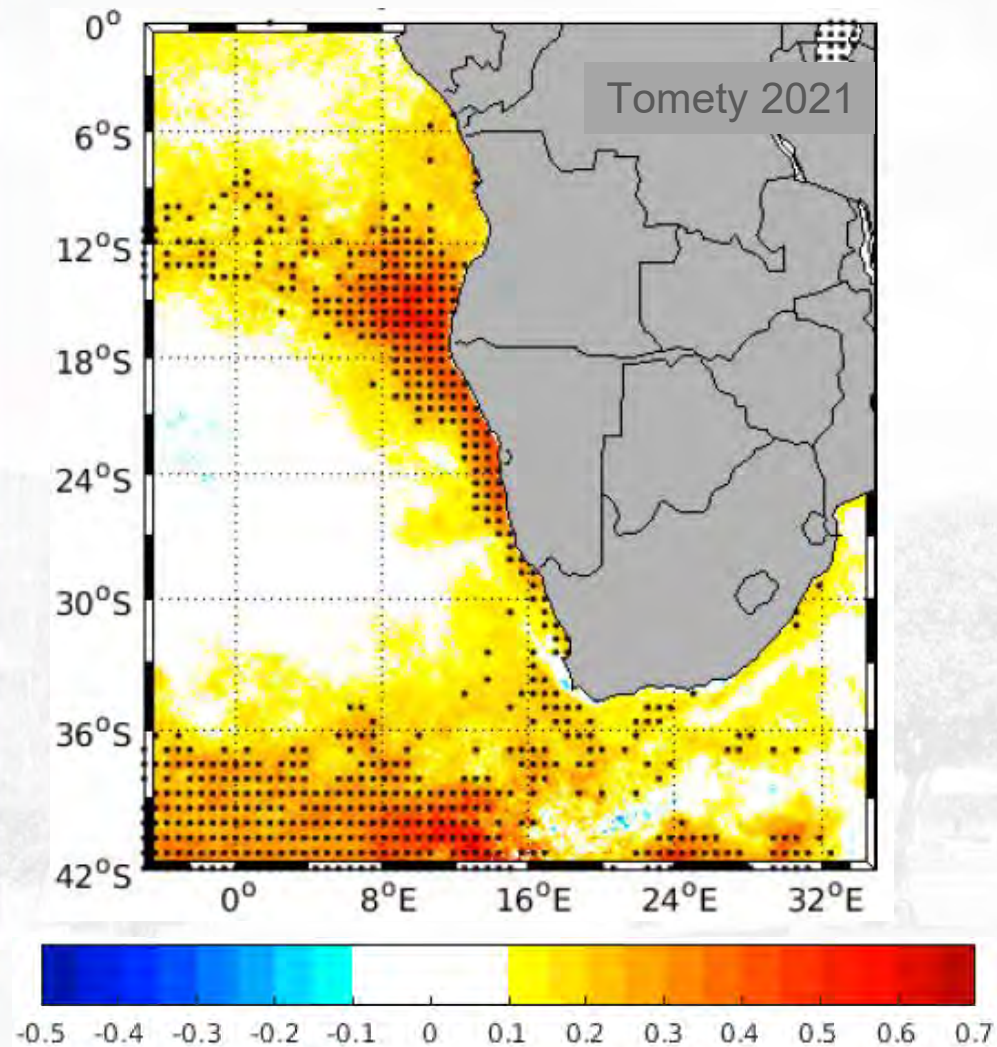
What did we discover, you might ask?

Faye Brinkman, Ph.D student in the Triatlas project.

In her work, Brinkman has created two 50 year long time series of the sardinella stock in the Benguela region.

# Warming of the Benguela region threatening Sardine

Warming of sea surface temperature since 1982  
Satellite data, degrees per decade



Folly Serge Tomety, PhD and postdoc in the Triatlas project.

In his PhD thesis, Tomety discusses the causes of the long-term warming in the Benguela region.

Please find his greetings for you at [www.triatlas.eu](http://www.triatlas.eu)

Prof. Dr. Kenneth Matengu, Vice Chancellor

# Acacia Gum Species in Namibia; chemistry and functionality potential

- This project is a collaboration between Namibia and Finland on sustainable materials from Namibian natural resources.
- In Namibia, most of the Acacia studies focused on their ecological and potential applications in livestock feeding materials, ethnoveterinary, and energy uses. However, they have not been investigated for their gum production. Therefore, this study is to investigate the chemical compositions and functionalities of gum Acacia extracts for food and nutraceutical applications.
- An MoU was signed and the ethical clearance certificate was obtained from the MRS-DEC in August and September 2023 respectively. NCRST Research permit application was submitted in September 2023.
- A seed funding was received in August to the tune of N\$ 59311.80.
- A research assistance was appointed for six months to carry on research activities and capacity building for early career Research Potential.



- Laboratory Analysis to be carried in October-Dec.2023 are:
  1. Chemical composition of Acacia species and identify the most unique ones similar to Gum Arabic chemometrics.
  2. Rheological properties of Gum Acacia (food additive = food application).
  3. Biological activities of Gum Acacia extracts (prebiotic= nutraceutical application)

Research Team : Prof. A. Cheikhyoussef (CRS, UNAM), Dr. Celestine Raidron (UNAM) , Dr. Renate Hans (UNAM), Ms. Hatago Stuurmann (UNAM Southern Campus), Ms. Matilde T. Johannes (SoS, UNAM) and Prof Ahmed A. Hussein (CPUT, Cape Town, South Africa).



# UNAM - SASSCAL PROJECTS



# Project objectives and categories of projects



Category: SADC grand challenge  
(covering 5 themes: Climate Change, Food Security, Water Security and Biodiversity Conservation)

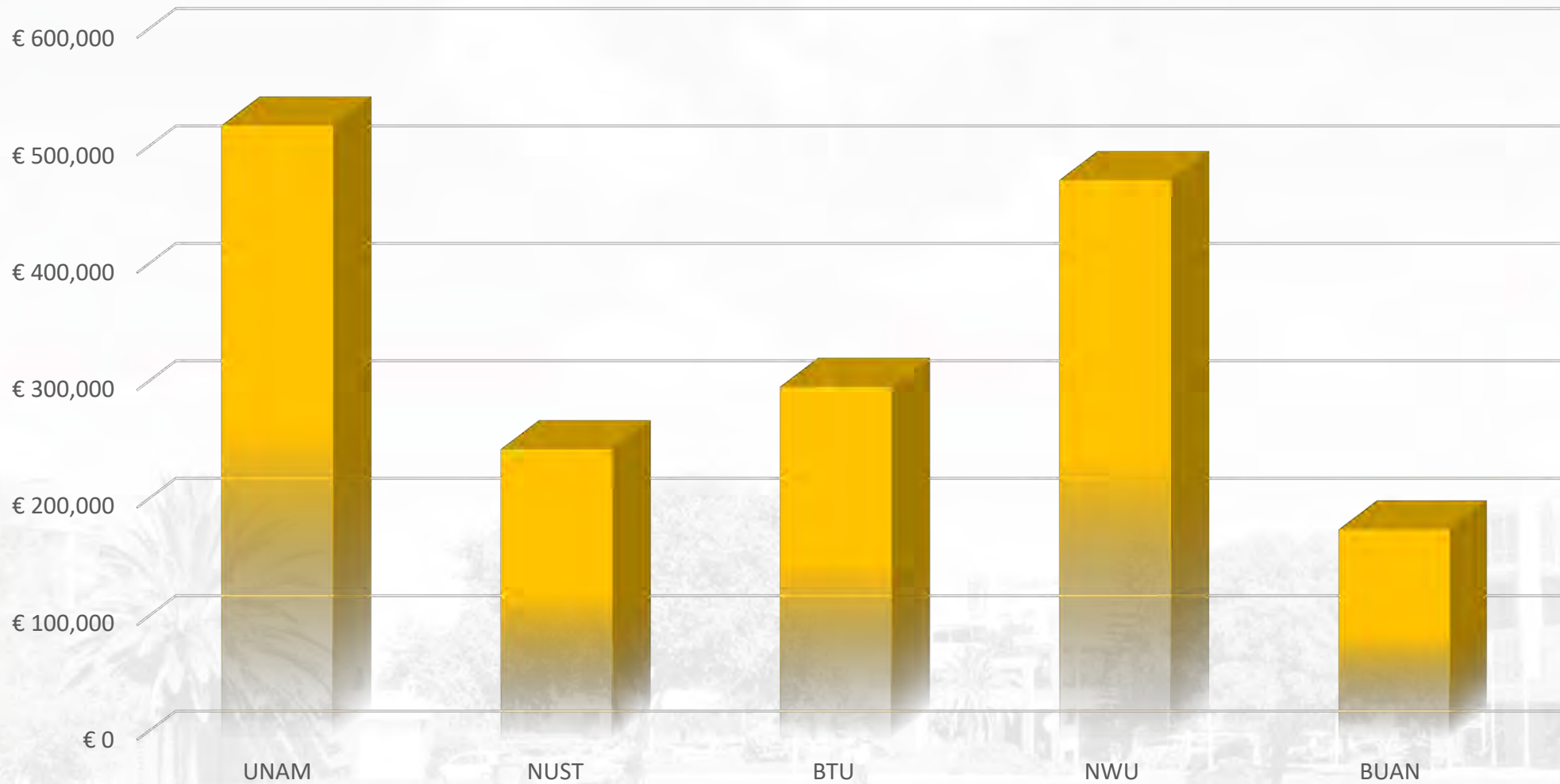
Goal: Grand challenge > conduct an in-depth research on food security, water, biodiversity and land conservation issues are appropriate and important among SADC stakeholders in regions of Southern Africa.

1. Assess the impact of bush thinning at different intensities on carrying capacity, biodiversity and hydrological cycle,
2. Determine the efficacy and cost effectiveness of different rangeland rehabilitation techniques,
3. Establish a fodder bank,
4. Assess the feasibility of utilizing harvested encroacher bush for animal feed and mushroom production,
5. Model the effect of rangeland rehabilitation strategies on carbon sequestration, biomass yield and carrying capacity,
6. Empower communities, especially women and youth on entrepreneurship skills,
7. Update the existing De-bushing Advisory Service and decision support tools.



RIBS WPs	Consortiums partners project
<b><u>WP A</u></b> : Bush Thining and improvement of bush-thining techniques	NWU, BUAN and BTU, NUST
<b><u>WP B</u></b> : Rehabilitation, fodder bank and aftercare following de-bushing	UNAM, NWU
<b><u>WP C</u></b> : Modelling the effects of rangeland rehabilitation measures on carbon sequestration	UNAM,
<b><u>WP D</u></b> : Bush feed and Bush Value Addition	UNAM, NUST
<b><u>WP E</u></b> : Decision Support Tools	NWU, UNAM

# RIBS Consortium Budget



# Capacity Development contribution

Institution	Expected number of Students to be benefit
UNAM	20 BSc (Science & Agriculture), 10 BSc (Engineering) 7 MSc, 3 PhD
NUST	10 BSc (Engineering)
BTU	1 Phd
BUAN	1 MSc, 1 PhD
NWU	2 MSc

# Progress....

- Acquired a state-of-the-art Perkin Elmer DA 7250 Near Infrared (NIR) analyser valued at N\$850,000.00,
- Training conducted on its operation by the supplier,
- Next – initial calibration using wet lab results need to be conducted,
- Recruitment of both PhD and MSc students, and field site selections ongoing.



# Other UNAM SASSCAL Funded Projects

<b>PROJECT</b>	<b>UNAM SASSCAL BUDGET (EUROS)</b>
Characterization and technology transfer of value added products from climate smart emerging crops to improve food security in Botswana and Namibia	41,391.90
Farmer Resilience and Melon Crop Diversity in southern Africa	18,000.00
Rangeland Improvement Through Bush Control and Sustainable Intensification (RIBS)	524,980.00
Sustainable Food Security and Woodland Utilization for Drought-Prone Communal Areas under Climate Change in SADC Countries	123,000.00
Water storage in the Angolan-Namibian Iishana system: resource management and adaptation to climate change	45,000.00
<b>Total Budget</b>	<b>752,371.90</b>

# We are closing a knowledge gap on genetic diversity of species of conservation concern

Network of TwinLabs of CIBIO UNESCO Chair on Life on Land, Flora and Fauna Genetics Bank





# UNAM – MoEFT & UNDP NILALEG Project



**UNAM's** role – MoEFT MU

N\$9,409,440.00

Climate Monitoring Using Drones



**MEMORANDUM OF AGREEMENT**

**ON THE IMPLEMENTATION OF NAMIBIA INTEGRATED  
LANDSCAPE APPROACH FOR ENHANCING LIVELIHOODS AND  
ENVIRONMENTAL GOVERNANCE TO ERADICATE POVERTY  
(NILALEG) PROJECT**

**BETWEEN**

**THE MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM  
Herein represented by Mr Teofilus Nghitila in his capacity as  
Executive Director and duly authorised thereto**

**AND**

**THE UNIVERSITY OF NAMIBIA  
(Established in terms of Section 2 of the University of Namibia  
Act, Act 18 of 1992, and situated at 340 Mandume Ndemufayo  
Avenue, Windhoek, Namibia)  
Herein represented by Prof Kenneth Matengu in his capacity as  
Vice Chancellor and duly authorised thereto**



Prof. Dr. Kenneth Matengu, Vice Chancellor



# DeltaQuad Pro



# Key Features



## Cover more ground

With the DeltaQuad Pro #MAP you can survey up to 1000Ha at 3cm per pixel in a single flight



## Vertical Takeoff and Landing

It can takeoff and land in confined areas of 5x5 meters or more



## RGB & Multispectral sensors

You can select several high quality RGB or multispectral camera sensors and swap them easily



## Centimeter level accuracy with PPK

Equipped with PPK based DGPS on both air and ground for CM level accuracy



## Fully autonomous

Fully autonomous missions from takeoff to landing, even beyond communication range



## Automatic terrain following

Plan your survey over hills and mountains with automatic terrain following



## Simple survey planning

Plan your survey easily with touch screen satellite maps and automatic path generation



## Radio and/or mobile internet

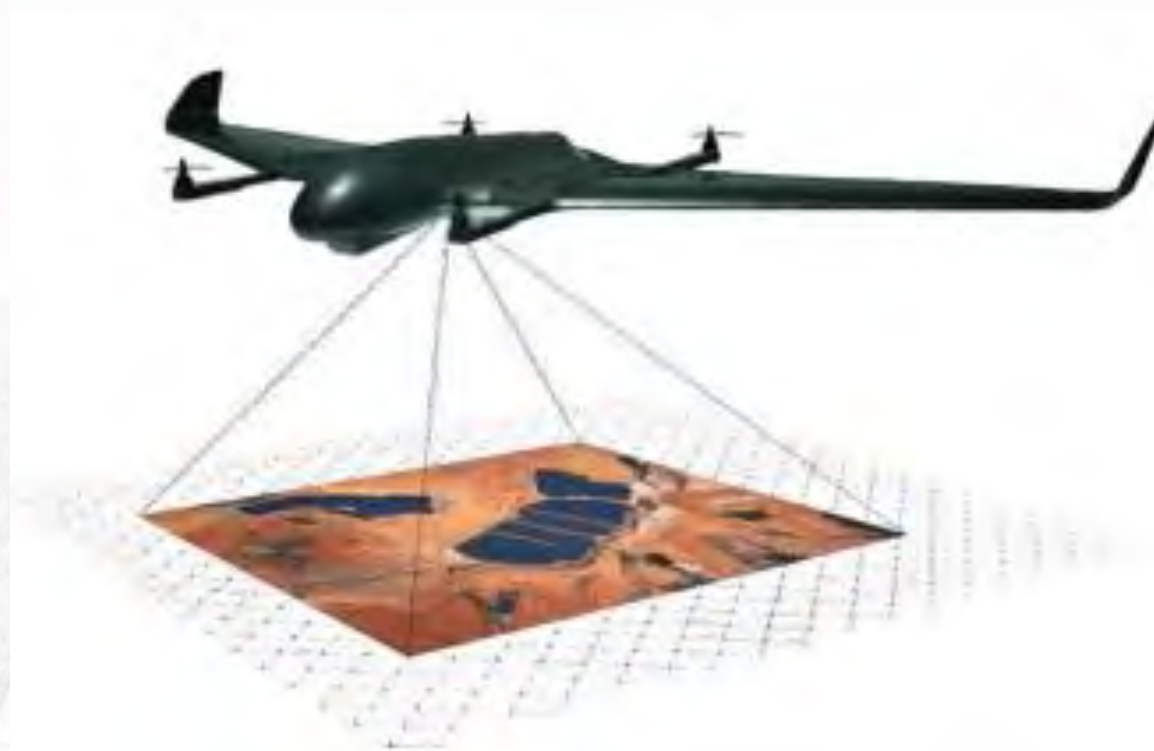
Up to 20KM radio range or unlimited using the mobile network

# UAV solutions for Humanitarian & Wildlife



- Anti poaching: detect human, cars and campfires
- Detect and observe forest fires
- Track animals using both RGB and Thermal cameras
- Improve ranger safety with aerial reconnaissance in dangerous area
- Deliver medical goods to areas in need
- Chart and count wildlife activity
- Detect illegal deforestation
- Monitor sea mammals

# Aerial mapping solutions for Agriculture and Forestry



- Monitor growth and prospected yield
- Identify problems without damaging healthy crops
- Manage irrigation and minimize soil erosion
- Monitor vegetation and identify weak spots
- Accurately identify boundaries inventory
- Chlorophyll Map
- NDVI Layer
- Digital Surface Model
- RGB Image

# UNAM – DebMarine



## Expansion of Rice and Poultry Project

- **Debmarine Namibia Sponsorship:**

In November 2022, the Ogongo Campus farm section received a sponsorship of N\$ 750,000.00 from Debmarine Namibia to support training of young Namibians and food production activities. The money was used to buy items to expand rice production and Poultry breeding activities. The following items were acquired: (i) Large incubators, a hatcher, an egg fertility tester, parent stock and cages, mating and laying chicken cages, and start-up poultry feeds (ii) 1x water pump to supply the rice expansion area. (iii) Several water pipes and rice seedling trays were also acquired for rice expansion activities. This will allow the rice production to be expanded from 4 ha to 10 ha.

Poultry Project will be able to produce 35,000 chicks per annum. Local farmers are being trained and mentored in rice farming and poultry production, while the campus will also serve as a local supplier of seeds and chicks. The ceremonial hand-over of the equipment was done on 10 July 2023.



# UNAM – Welsh Government Cardiff University

Climate change and livelihood  
enhancement project



# OGONGO INDIGENOUS FOREST PARK

- Ogongo Indigenous Forest Project is a carbon off-setting solution that will develop and restore 100 ha of dryland forest native to Namibia into pristine forest (both countries, Wales and Namibia, reduce their carbon footprint).
- Planned as a hub for indigenous fruit tree production enabling local people to grow, conserve and process fruits, reducing poverty and valuing local trees, while at the same time addressing climate change.
- Seedlings have already been planted and are in the nurseries



# Self Reliance Project

- Grass Hay: A total of 8181 small square bales of grass harvested as fodder for Ogongo Campus livestock and other farmers at the northern regions. A lot is still available for sell

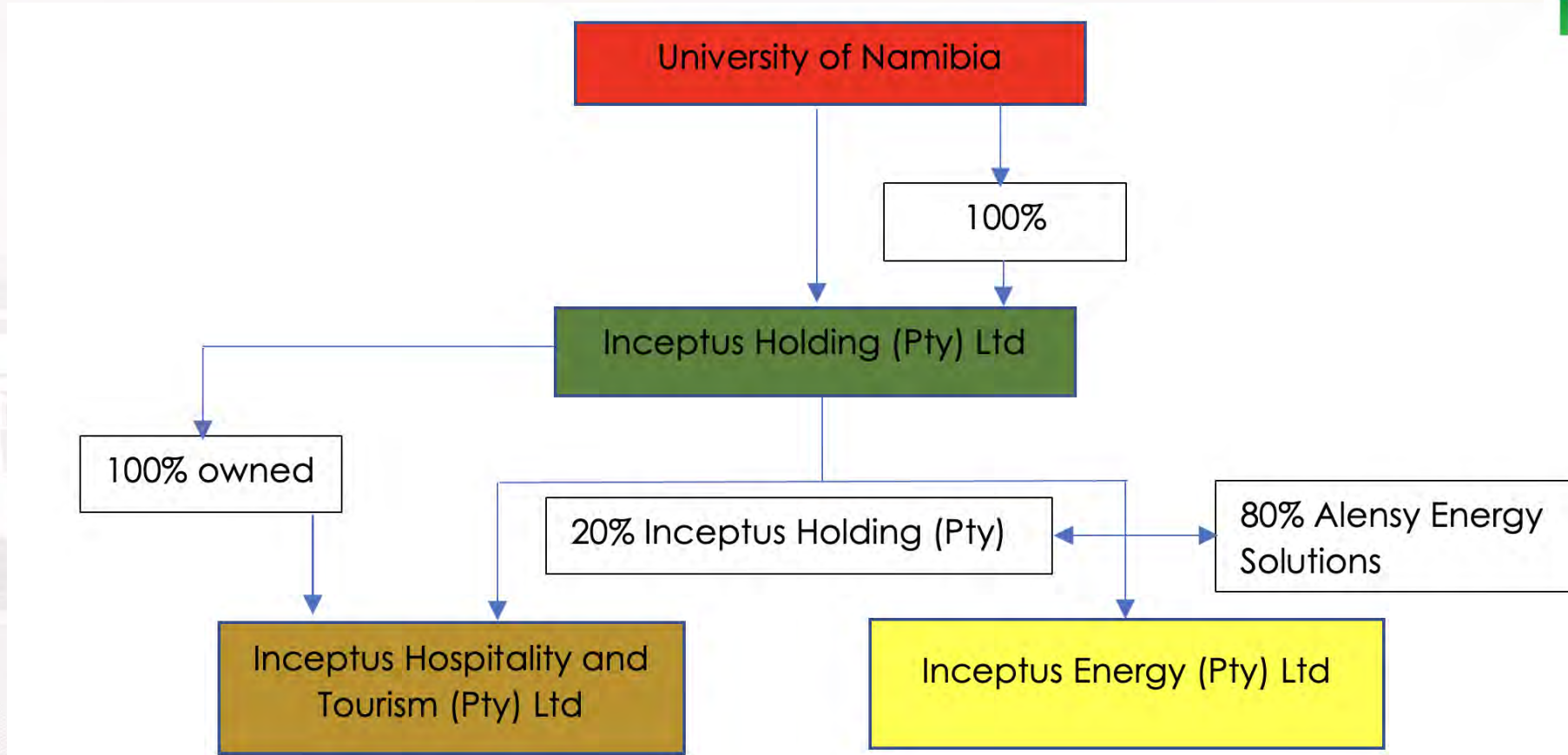


# UNAM Renewable Energy Project



**INCEPTUS**  
Holding (pty) Ltd

- Inceptus structure and subsidiaries



\*Inceptus Energy owns the the equipment that are technically leased to UNAM



## • Offer by Alensy & benefits to Inceptus

The implementation of a project that will use renewable energy technologies to:

- a) Provide more cost-effective electricity to UNAM
- b) Reduce the Universities carbon footprint by generating electricity using 100% renewable energy technologies
- c) Provide a Revenue stream for Inceptus Holding, the commercial arm of UNAM. The shareholding will generate extra income for Inceptus Holding as an additional benefit for UNAM (Dividend)
- d) Responsive to the national goal to reduce the reliance on electricity imports from neighbouring counties
- e) The project will reduce UNAM carbon footprint by avoiding 3,900 tons of carbon emissions annually



## • ERA VS PPA

Why Equipment Rental Agreement (ERA) and not Power Purchase Agreement (PPA):

PPA	ERA
A PPA would require a Generation Licence (GL) application for each system regardless of size	The ERA eliminates the need for a GL since the system is being rented.
The client is protected by purchasing the required electricity	The client is still protected by performance clauses to assure that the system is performing according to expectation.
PPA by nature takes time to implement due the the nature of the transaction	ERA is is fast to implement because cost of equipment acquisition can be spread over time. ERA align better with their financial capabilities of Inceptus



# • Capital Expenditure

The Capital expenditure totals around 65 million Namibian Dollars and the allow for the following benefits:

- Reducing electricity consumption of up to 6.5 million kWh units per annum
  - Electricity received from the solar plants are at least 40% cheaper than currently supplied by utilities
  - Net saving of 10 million Namibia Dollar per annum
- Reducing connection capacity of 6.8 MW down to 2.8 MWp
  - Net Saving of 2 million + per annum (actual still be finalised)
- Total saving of about 12 million Namibian dollars per annum





# •Project Summary

The project consists of the following:

- Photovoltaic Solar Power Generation plants - 3.4 MWp (which is *grid tied system*)
  - *Sunlight, produce DC Electricity, Inverters will convert DC to AC*
  - *synchronizes the AC electricity to the current electrical grid.*
  
- Battery Systems that are designed to reduce electricity demand peaks for specific campuses
  
- The solar plants were structurally applied using:
  - *Rooftop Applications*
  - *Fixed Tilt Ground Mount Applications*
  - *And Horizontal Axis Sun Tracking Mounting Applications*
  
- The solar plants have an expected lifetime of more than 25 years

# •Project status



Sites	Scheduled Progress	Actual Progress	Due Date
Main Campus (Windhoek)_phase 1	53%	98%	10-Oct-23
Hage Geingob Campus (Windhoek)	56%	98%	7-Oct-23
José Eduardo dos Santos Campus (Ongwediva)	95%	96%	9-Sep-23
Hifikepunye Pohamba Campus (Ongwediva) ADMIN	39%	65%	12-Nov-23
Hifikepunye Pohamba Campus (Ongwediva) ADMIN & KITCHEN	32%	65%	11-Dec-23
Hifikepunye Pohamba Campus (Ongwediva) MEN Hostel	56%	80%	14-Oct-23
Hifikepunye Pohamba Campus (Ongwediva) WOMEN Hostel	76%	80%	25-Sep-23
Hifikepunye Pohamba Campus (Ongwediva) WOMEN Hostel 2	27%	65%	14-Jan-24
Katima Mulilo Campus (Katima Mulilo)	28%	28%	4-Nov-23
Khomasdal Campus (Windhoek)	100%	99%	22-Aug-23
Neudamm Campus (Windhoek)	46%	30%	12-Nov-23
Ogongo Campus (Ogongo)	29%	28%	16-Jan-24
Oshakati Campus (Oshakati)	30%	60%	12-Jan-24
Rundu Campus (Rundu)	28%	28%	27-Oct-23
Sam Nujoma Campus (Henties Bay)	31%	95%	15-Jan-24
<b>Sub-total</b>	<b>47%</b>	<b>64%</b>	

# Liquid Nitrogen Production



**INCEPTUS**

Holding (pty) Ltd

**TEL:** +264 61 206 4363

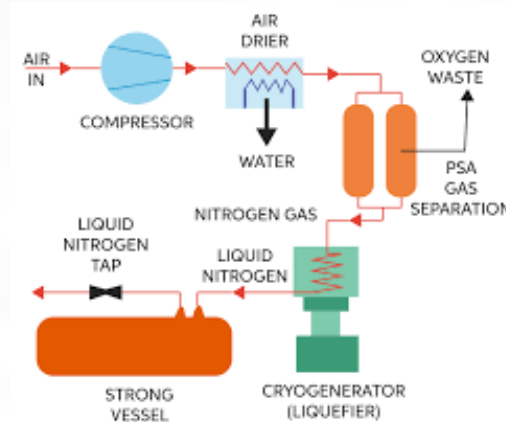
**EMAIL:** [inceptus@unam.na](mailto:inceptus@unam.na)

# • Background and Introduction



**LN Plant**

- The primary source of nitrogen is atmospheric air, which is a mixture of nitrogen, oxygen, and other gases.
- Air separation is the initial step in the production of liquid nitrogen. This process typically involves cryogenic distillation, which takes advantage of the differences in boiling points between nitrogen and oxygen.
- Air is compressed and cooled to extremely low temperatures, usually below the boiling point of nitrogen ( $-195.79^{\circ}\text{C}$  or  $-320.44^{\circ}\text{F}$ ). This causes nitrogen gas to liquefy while leaving most of the oxygen and other gases in a gaseous state.



**Production Process**

- The liquefied air is then subjected to fractional distillation in a distillation column or tower.
- As the air is slowly heated, the various components start to vaporize at their respective boiling points. Nitrogen, with its lower boiling point, vaporizes first.
- The vaporized nitrogen is condensed and collected as a liquid at the bottom of the column, while oxygen and other trace gases are separated and removed at different levels.



**LN Storage**

- Liquid nitrogen is collected, stored, and transported in insulated cryogenic containers or tanks designed to maintain extremely low temperatures.
- These containers keep the liquid nitrogen in its cryogenic state until it is needed for various applications.



- Operations and Production

Production of LN per day	50 L (per day)
Yearly running 365x20 hours	18,250L (per year)
Selling price	N\$80.00
10 LN Dewars (canisters)	Institutions and commercial labs
Neudamm//Inceptus	Sold per year with 50% mark up
Production site	Neudamm Experimental Farm



## • Potential Clients

Sector	Purpose of use
Health Sector	Pharmaceutical and biotechnology
Food Processing Sector	Fruits and Vegetables, Dairy, Poultry and Meat
Agriculture Sector	Animal husbandry and for Artificial insemination
Laboratories	Institutions and commercial labs
Neudamm//Inceptus	Bull semen storage for commercial use

# Community Engagement



# School of Veterinary Medicine: community engagement

In order to fulfill the third objective in our mission statement,  
*“To provide and integrate community service in core academic functions”*,

the School of Veterinary Medicine offers veterinary clinical services and assessment of local abattoirs to the wider Namibian community .

These platforms integrate community service (especially for clients who do not otherwise have access to veterinary services) with student training, and also generate an income for the University.



# Production Animals: Ambulatory Clinic

- Communal farms in Stinkwater, Hatsamas, Hamas, Opdam and Ongombo West are visited in turn on a weekly basis. 3 to 5 final year vet students assisting the clinicians attend to ill and injured production animals
- This far in 2023, 57 bovines, 48 Ovines, 69 caprines as well as some chickens and dogs have been treated for various conditions



# Companion Animals: Mobile clinic

- Services: surgical sterilisation, vaccinations, parasite control
- 42 villages and settlements throughout Namibia visited yearly
- Total of 15300 patients attended, of which 1038 were seen in 2023
- 3 final year veterinary students assist the clinicians on each trip
- 90% donor funded
- 110 000 km travelled, covering most regions in Namibia



# New facilities for Veterinary Academic Hospital (Neudamm) in 2023

- Bovine Unit

- Crush system with neck clamp and tilt table
- Operating area
- 5 pens for patient housing



- Equine Unit

- Two stables with outside paddocks
- Shaded ring for minor procedures
- Crush



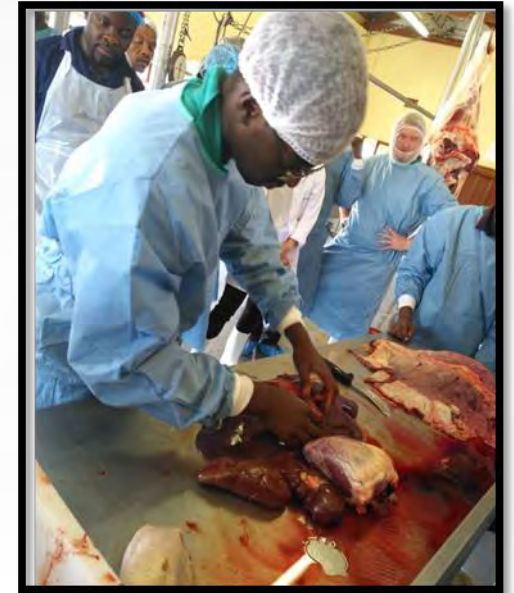
# Veterinary Academic Hospital

- Outpatients Unit for small animals: phase 2 of 6 phases completed on Main campus
- Patients are transported to Neudamm for hospitalization and surgery, pending completion of all 6 phases
- All large animals attended at Neudamm
- Total of 1298 clients with 1985 patients registered as outpatients, and 1014 clients with 2997 patients registered at Neudamm
- Challenges experienced in budget for hospital equipment

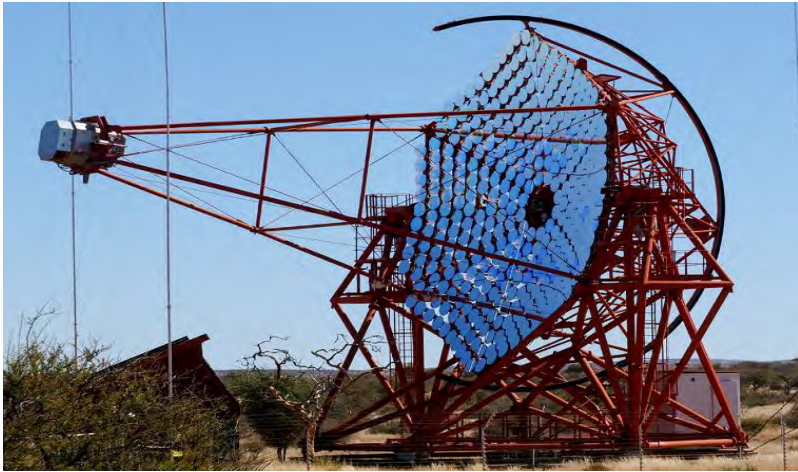


# Veterinary Paraclinical services to community

- Kois – local abattoir training with the MBA and Hardap dam
- Brakwater – local abattoir, training of workers and CoW inspectors
- Pathology – One Health initiative training in practical pathology and sample taking



# Other Key Research Areas



AFRICAN-MILIMETRE TELESCOPE



GREEN HYDROGEN INSTITUTE



ONE HEALTH CONCEPT



UNAM RICE PROJECT



National Climate Change Monitoring



Plant and Animal Genetic Bank

# Oral Vaccine trials in Kudu antelope (*Tragelaphus strepsiceros*)



Bait uptake by free-ranging kudu



Work in the boma



Vaccine containing bait



With consultancies from the Namibia Nature Foundation the Environmental Science Department acquired a boat and trailer for aquatic ecology research on fisheries Reserves in Kavango, and Zambezi Rivers. Training is also offered to Angola fisheries staff and research on stocks.

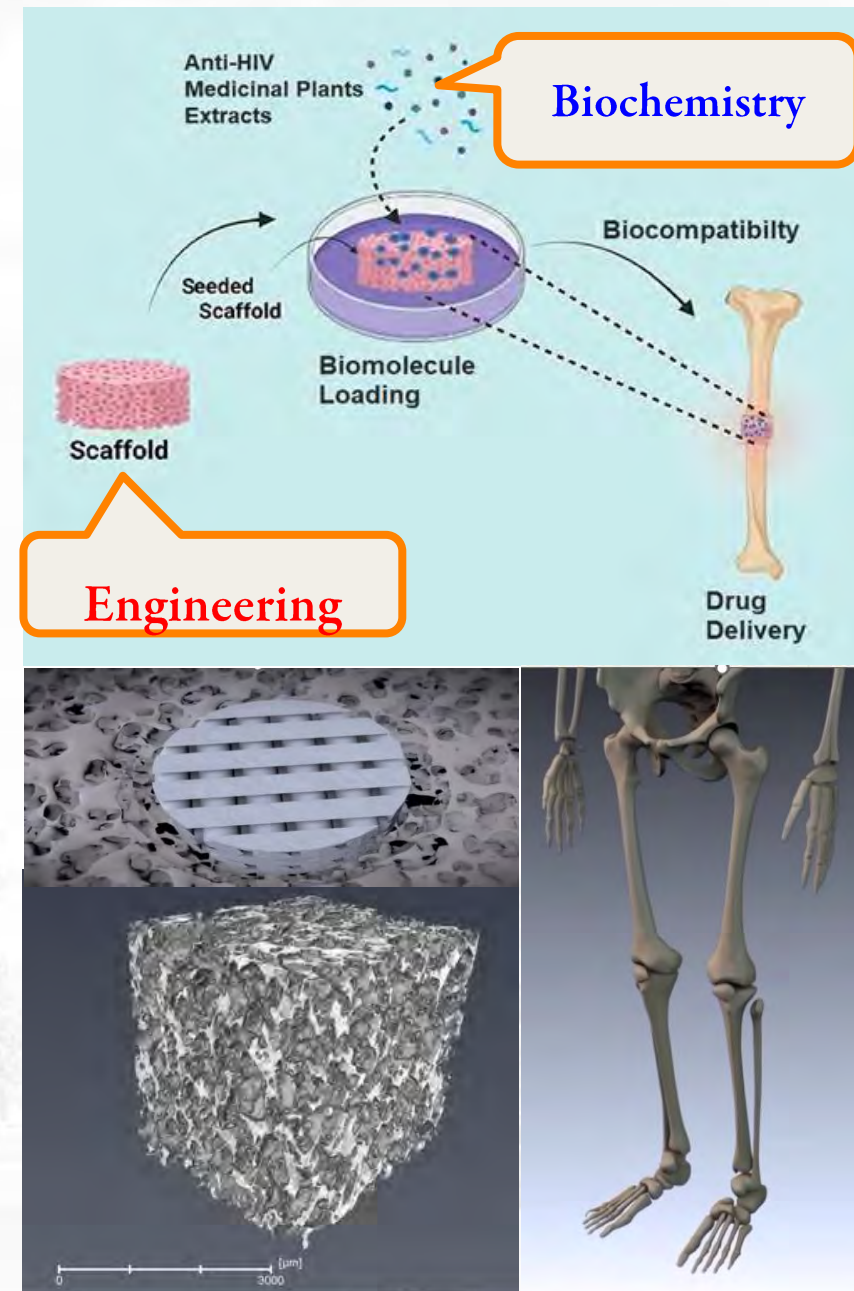




## School of Engineering & the Built Environment

Collaborative research between the UNAM School of Engineering, Natural Sciences and the University of Mainz (Germany) to fabricate bioactive glass scaffolds that can deliver anti-HIV medicinal plant extracts to increase bone mineral density in people affected by HIV/osteoporosis.

Funding of ~N\$ 2 million was secured from the Federal Ministry of Education and Research (BMBF), Germany.



The Lee Schipper Memorial Grant was awarded to UNAM, under the project Reimagining Non-Motorized Transport Policies in Secondary Urban African Towns: The Case of Namibia.

The research project sheds light on the status of Non-Motorised Transport (NMT) in Namibian towns towards providing guidance on addressing the evolving NMT infrastructure and policy.

A grant of USD 10 000.00 was received.

Hifikepunye Pohamba & Oshakati Campuses - Bulgarian Government funded the rural school online digital learning and teaching capacity building and strengthening.

Trial of Excellence in Southern Africa Project (TESA) – the funding for the TESA project have established the Molecular real-time PCR technology and Biobank at Oshakati Campus.



# COHESA

Capacitating One Health in Eastern and Southern Africa



## Knowledge sharing

Understanding One Health (OH) status of countries and promoting information sharing and collaboration



## Governance

Promoting national and regional OH collaboration, and supporting implementation of OH platforms within each country



## Education and research

Building the future OH workforce in secondary and tertiary education institutes



## Delivery of One Health solutions

Local partners adopt, develop and implement OH solutions. Training professionals and building the future OH workforce through OH secondary and tertiary education. Strengthening research innovation in One Health

## Beneficiaries

Local partners deliver a 4-year project—building a society-wide inclusive system to rapidly manage and resolve One Health threats

## Consortium-led



Prof. Dr. Kenneth Matengu, Vice Chancellor

# UNIVERSITY OF NAMIBIA PRESS - SCHOLARLY BOOKS FOR NAMIBIA AND THE WORLD



**UNAM  
PRESS**

Index of internationalization =

- MANUSCRIPT SUBMISSIONS
- + AUTHORS + REVIEWERS
- + PUBLISHING PARTNERS



UNAM Press book, *Namib* wins SAfA book prize 2023 for championing African archaeology



International partners



Taylor & Francis



**SPRINGER NATURE**

**CORNELL  
UNIVERSITY PRESS**

**UNISA** university of south africa

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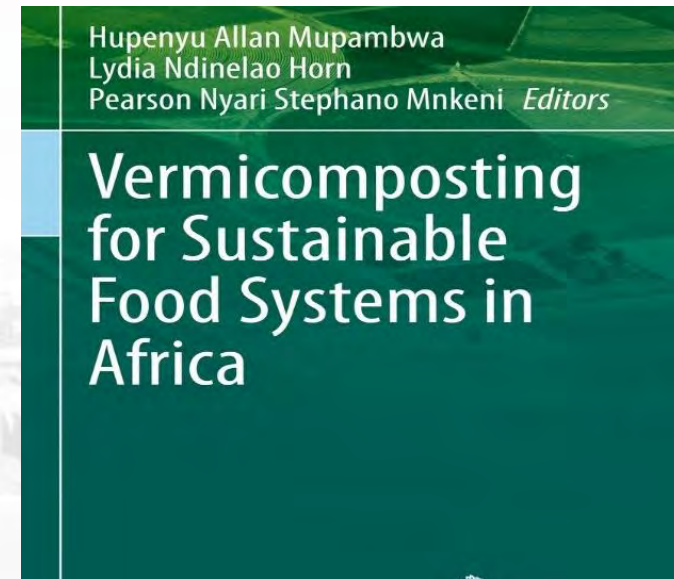
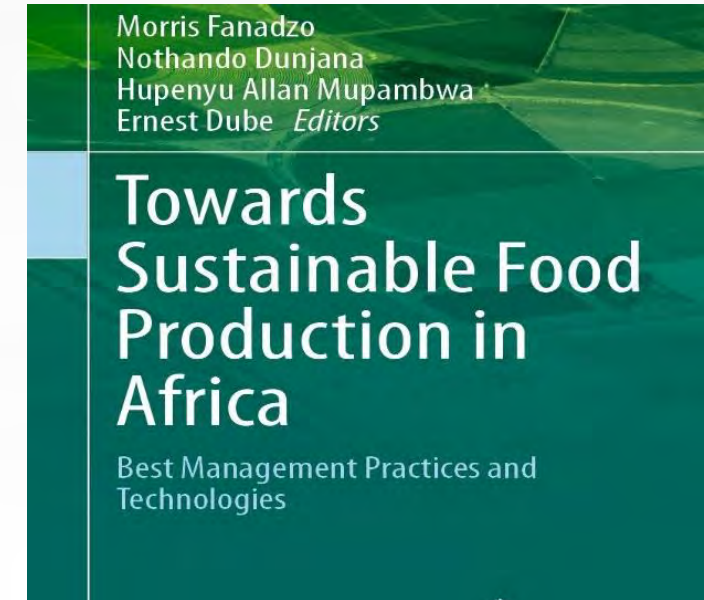
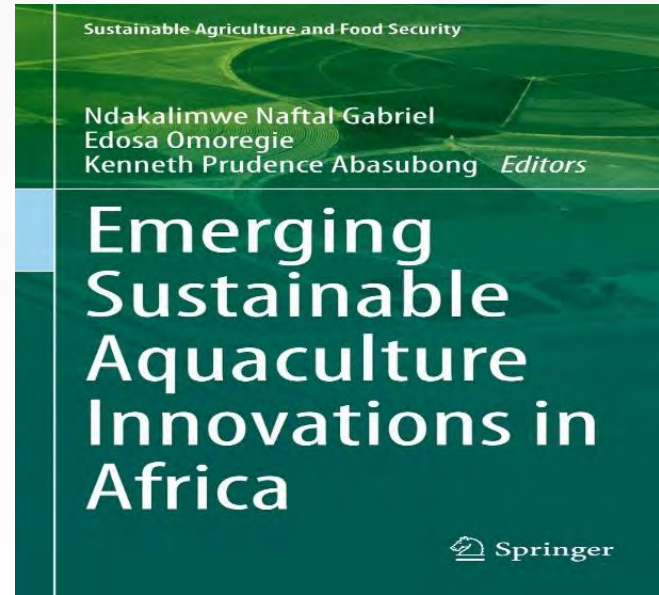
**JAMES CURREY**



# Our Contribution to Sustainable food systems

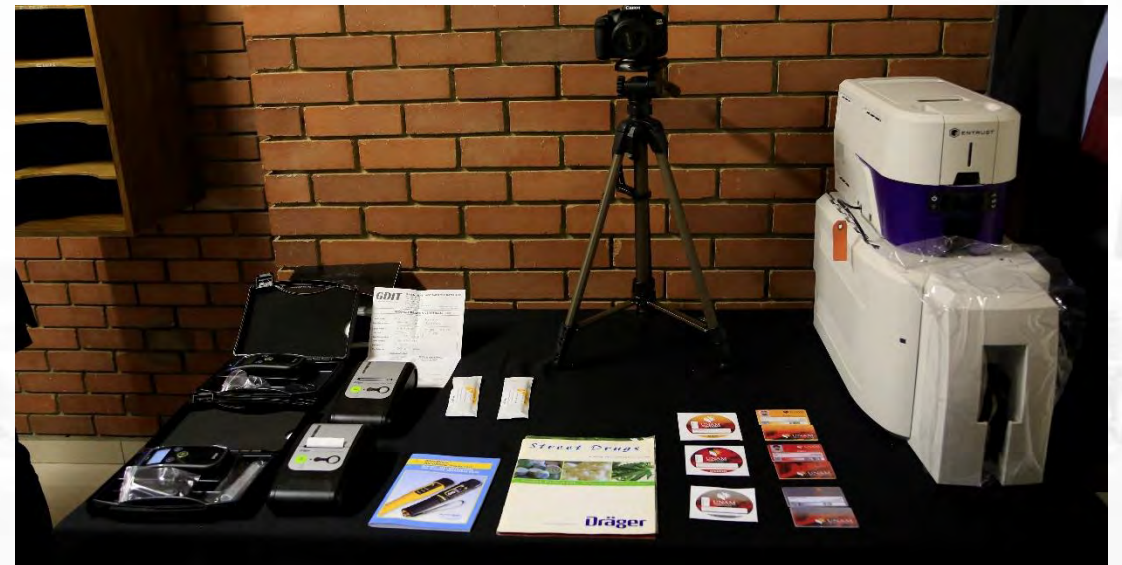
The high publication output in the 1st half of 2023 at SANUMARC with

- A total of 32 publications split as
- 9 research papers;
- 23 book Chapters and
- 3 Edited books.



# Security, Access Control and Safety Projects

Phase one in progress at Main Campus



# GRADUATE ATTRIBUTES

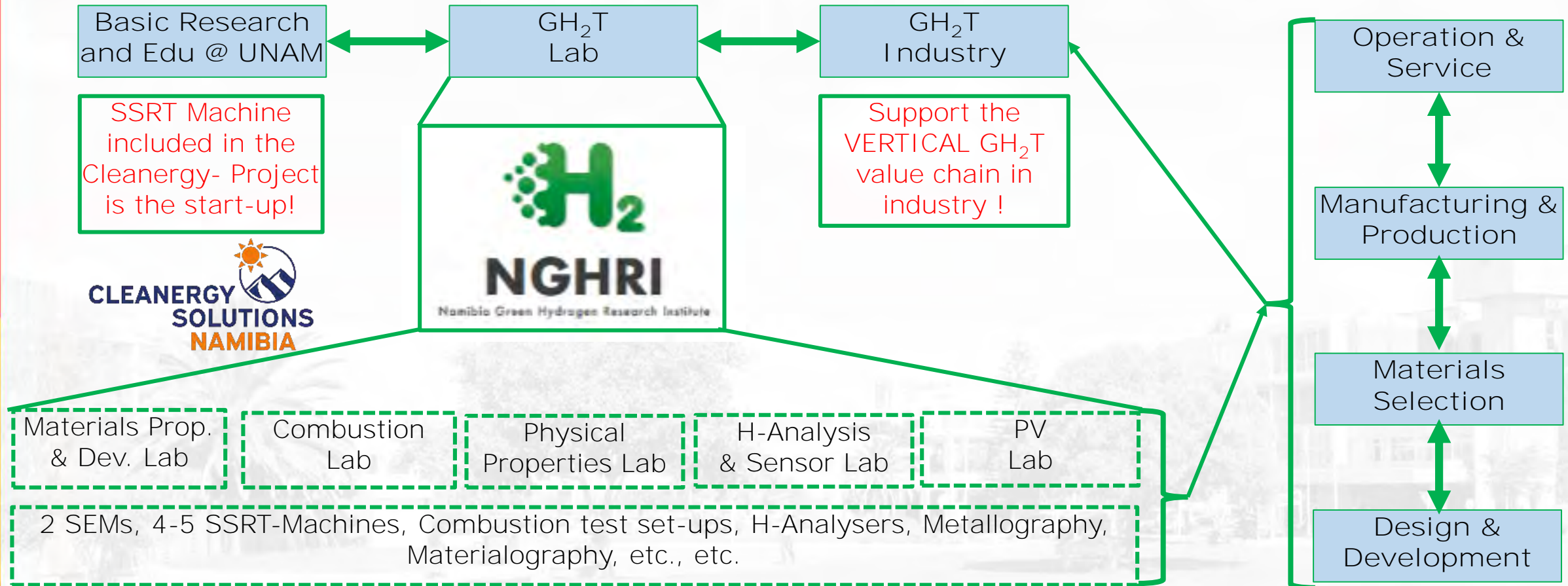
- Problem solving and critical thinking skills
- Ethical leadership and conduct
- Compassion and diverseness
- Adaptability and flexibility
- Environmental awareness and social responsibility
- Independent life-long learning
- Team work
- Innovative and entrepreneurial mind
- Effective communication skills
- Technological and digital literacy
- Global citizenry with an international perspective



# Development of the NGHRI –@UNAM

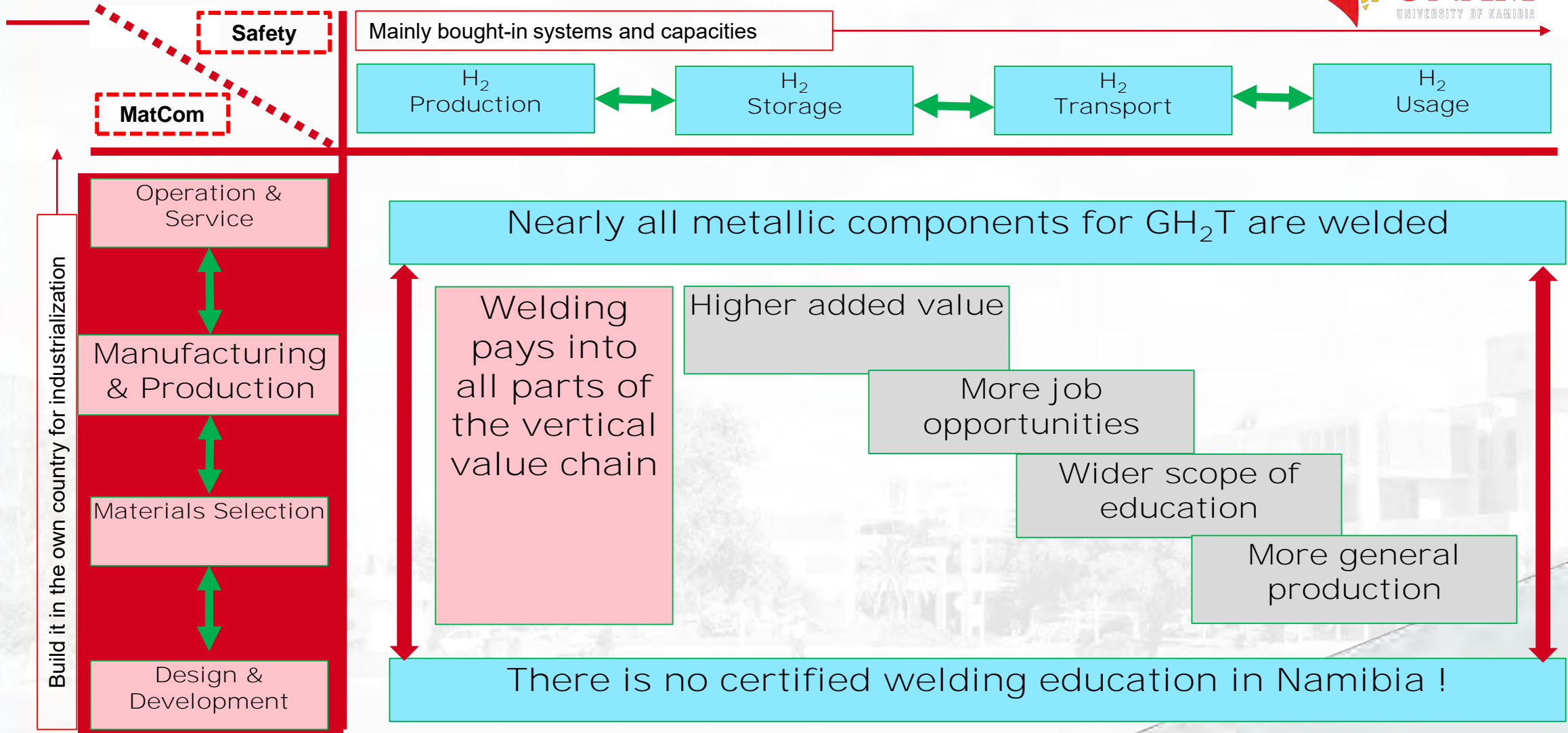
Light at the horizon II – 5 staff pursuing PhDs at BAM, Germany

We need educators for NGHRI to emerge into a research and testing lab for GH<sub>2</sub>T in Namibia





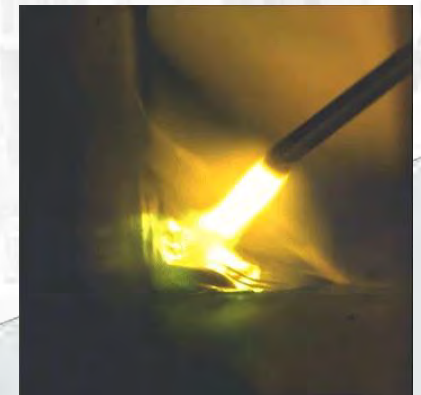
MSc Education together with UNAM  
Welding Engineering Education – not only for GH<sub>2</sub>T



Signed MOU with BAM, IIWE, University West – Production technologies  
Welding Education and Training – not only for GH<sub>2</sub>T



INTERNATIONAL  
INSTITUTE  
OF WELDING



- High-level workshop: Industry, UNAM, Ministry of Education
- Establish an Authorized Nominated Body (ANB) under the IIW
- Create a Master of Welding Engineering Program @ UNAM
- Establish several Authorized Training Bodies (ATBs)

**Qualification Levels / Guidelines:**

- IWE/EWE – Engineer
- IWT/EWT – Technologist
- IWS/EWS - Specialist
- IWP/EWP – Practitioner
- IWIP/EWIP – Inspection Personnel (3 levels)
- IW/EW – Welder (3 levels, 4 processes)
- IWSD – Structures Designer (2 levels)
- Distance Learning
- International/European Mechanized, Orbital and Robot Welding (2 levels)

ISCED Level 7	Additional qualification in engineering
ISCED Level 6	
ISCED Level 5	Additional qualification in metal-work. Industry or handcraft + min. 3 years experience
ISCED Level 4	

**UNam-VC:  
Namibia especially  
needs education  
between Level 3 and 7 !**

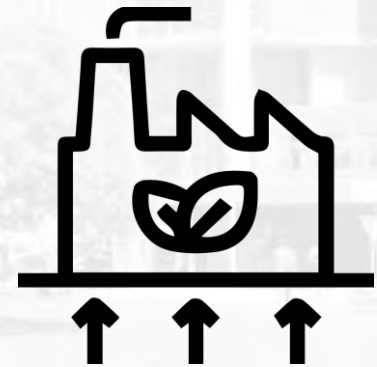
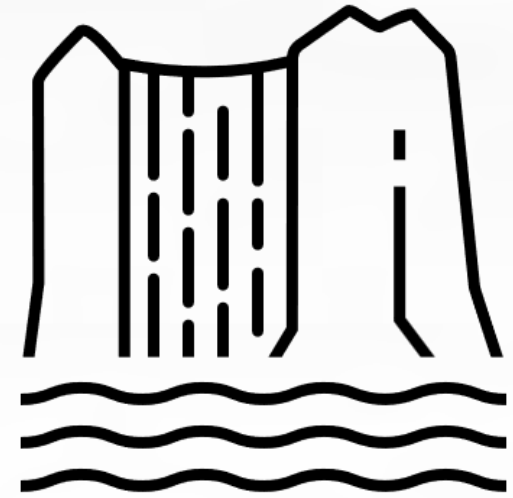
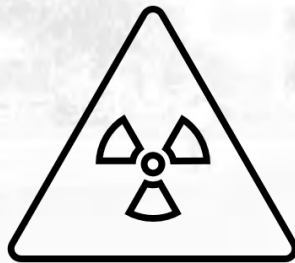
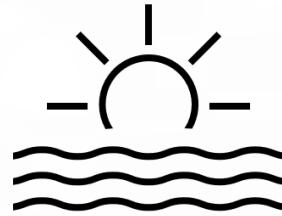
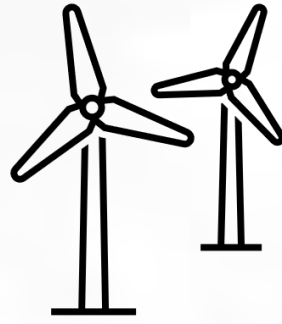


# Diversification of ZERO Carbon Emission Energy Sources

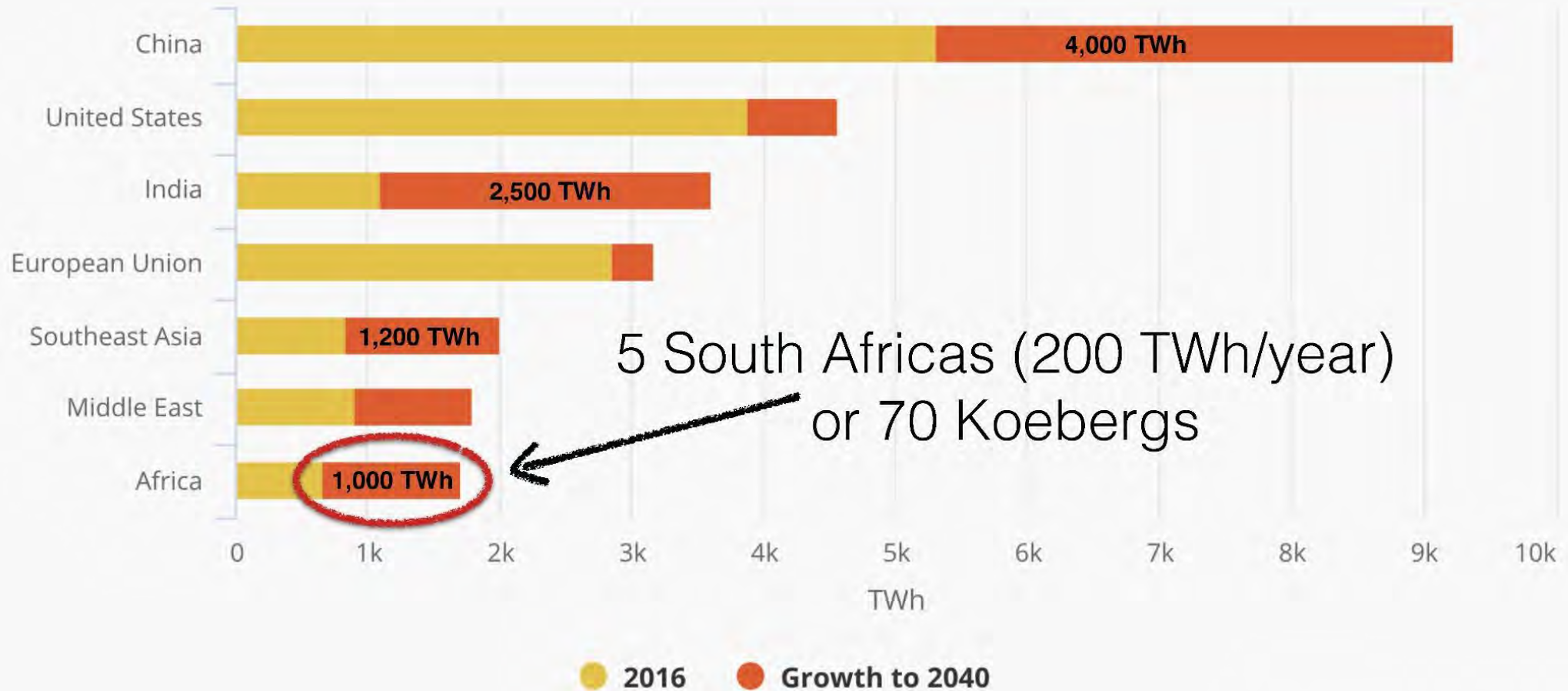
Not all countries  
are endowed  
(free) with

Wind  
Sun  
Uranium  
Hydro  
Geothermal

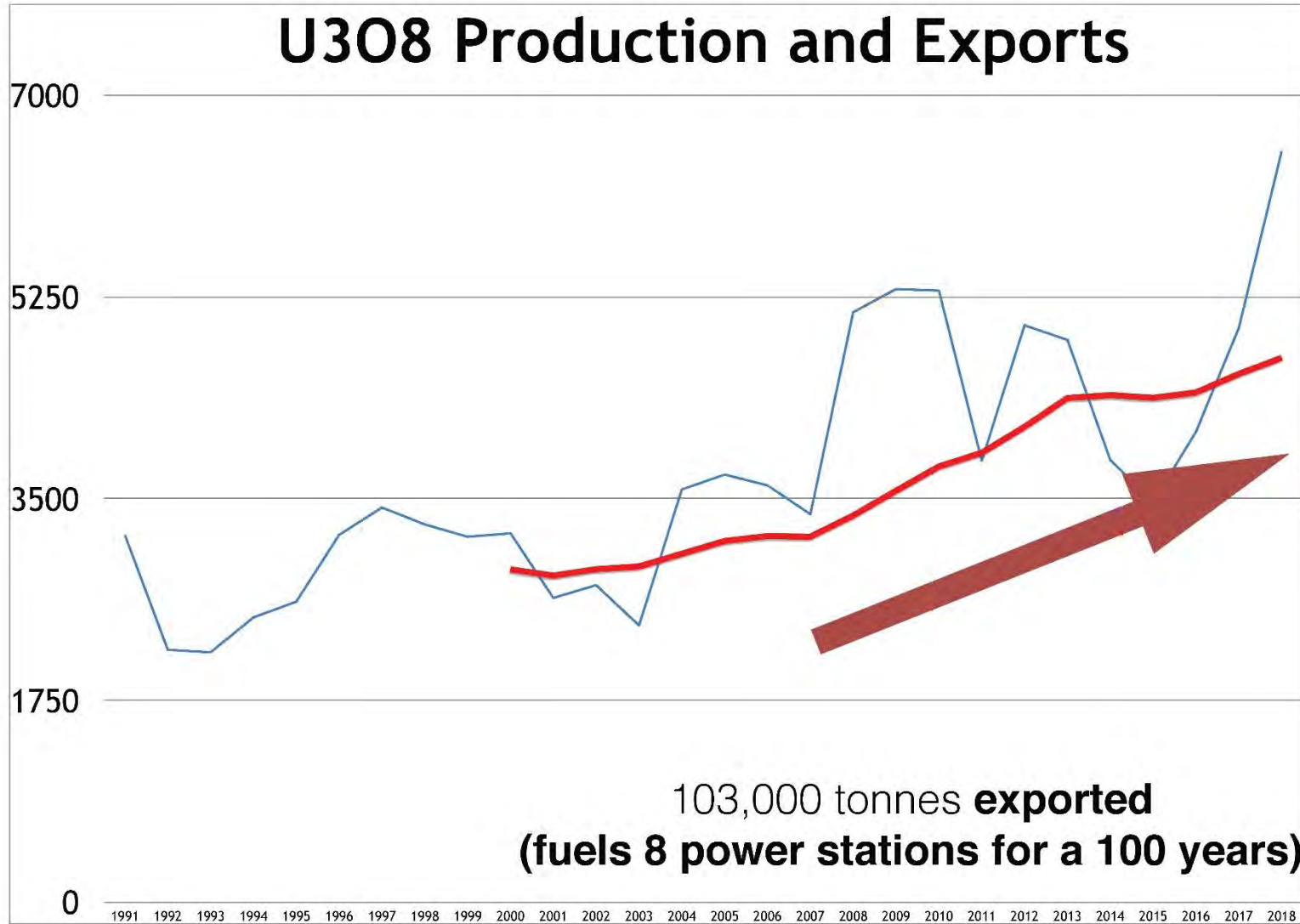
making them useful  
is NOT Free, they  
require conversion



### Electricity demand by selected region



## U308 Production and Exports



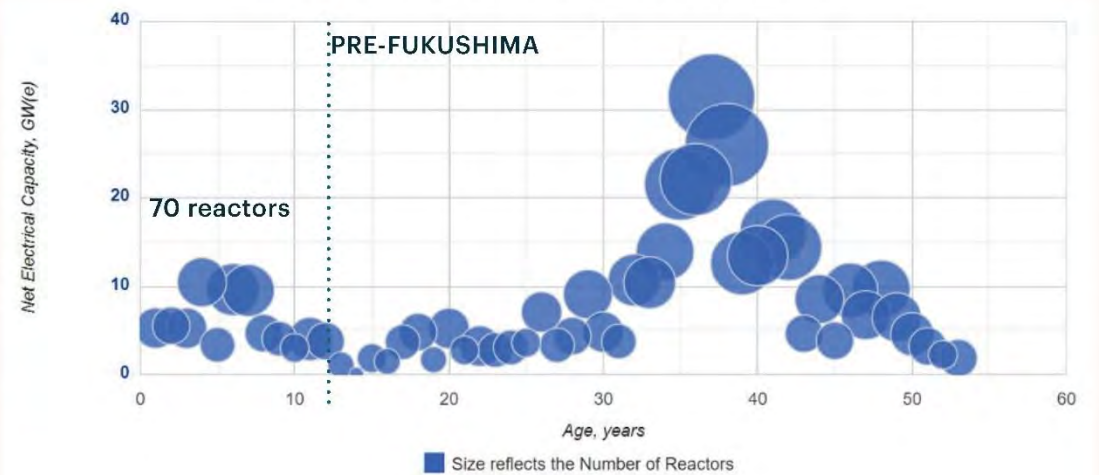
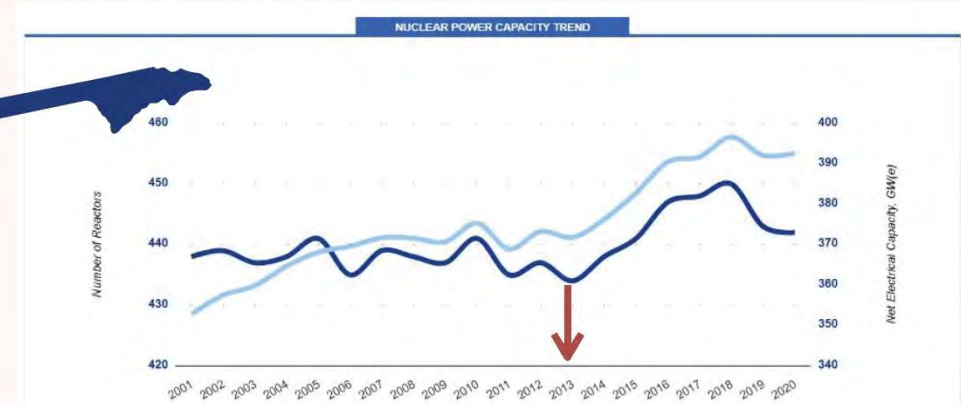
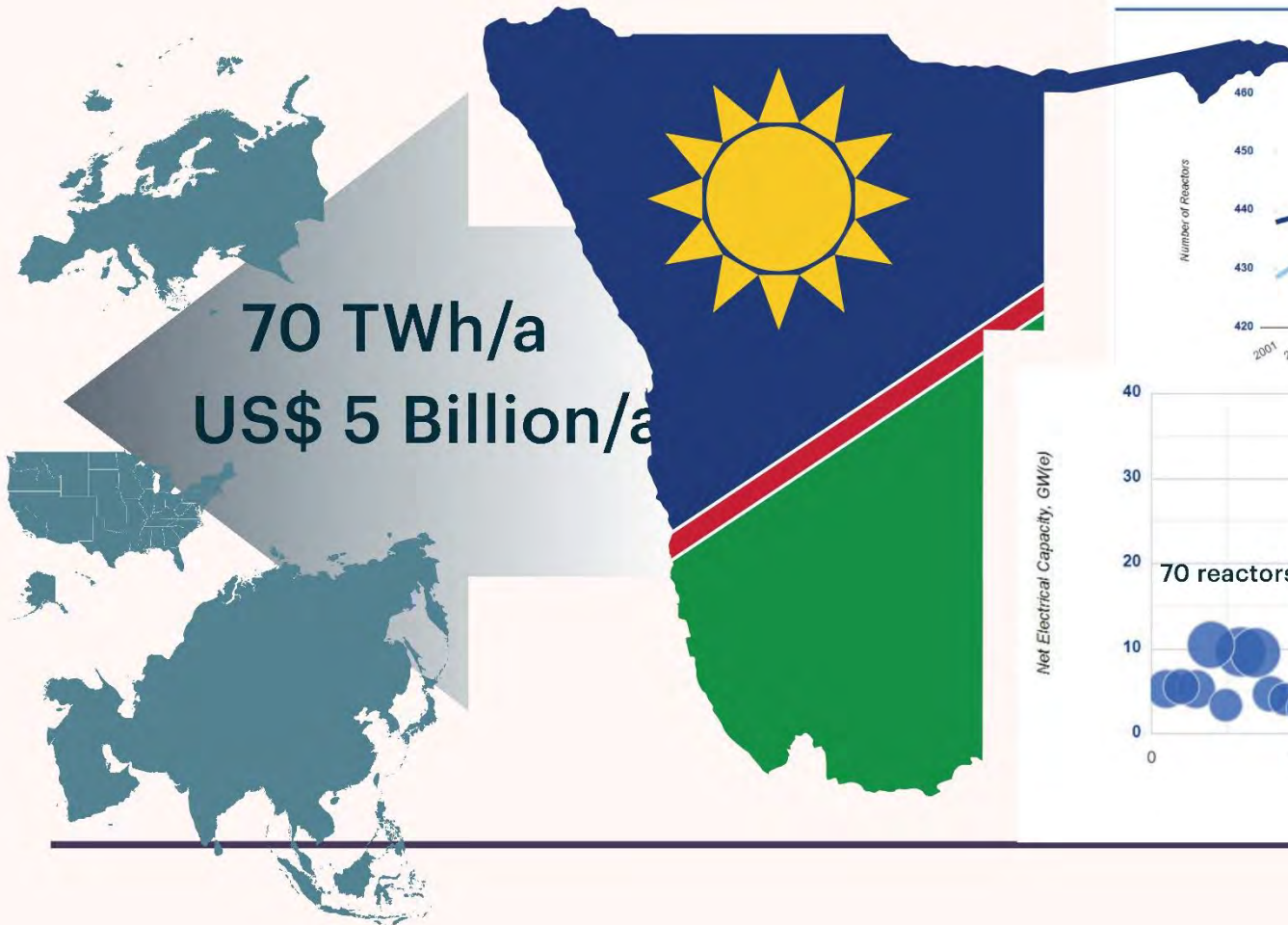
2020



6,500 t produced

103,000 tonnes **exported**  
(fuels 8 power stations for a 100 years)

# NET ENERGY EXPORTER



# Footprint of NNP





# Footprint of NNP vs Solar



# Footprint of NNP vs Solar vs Wind



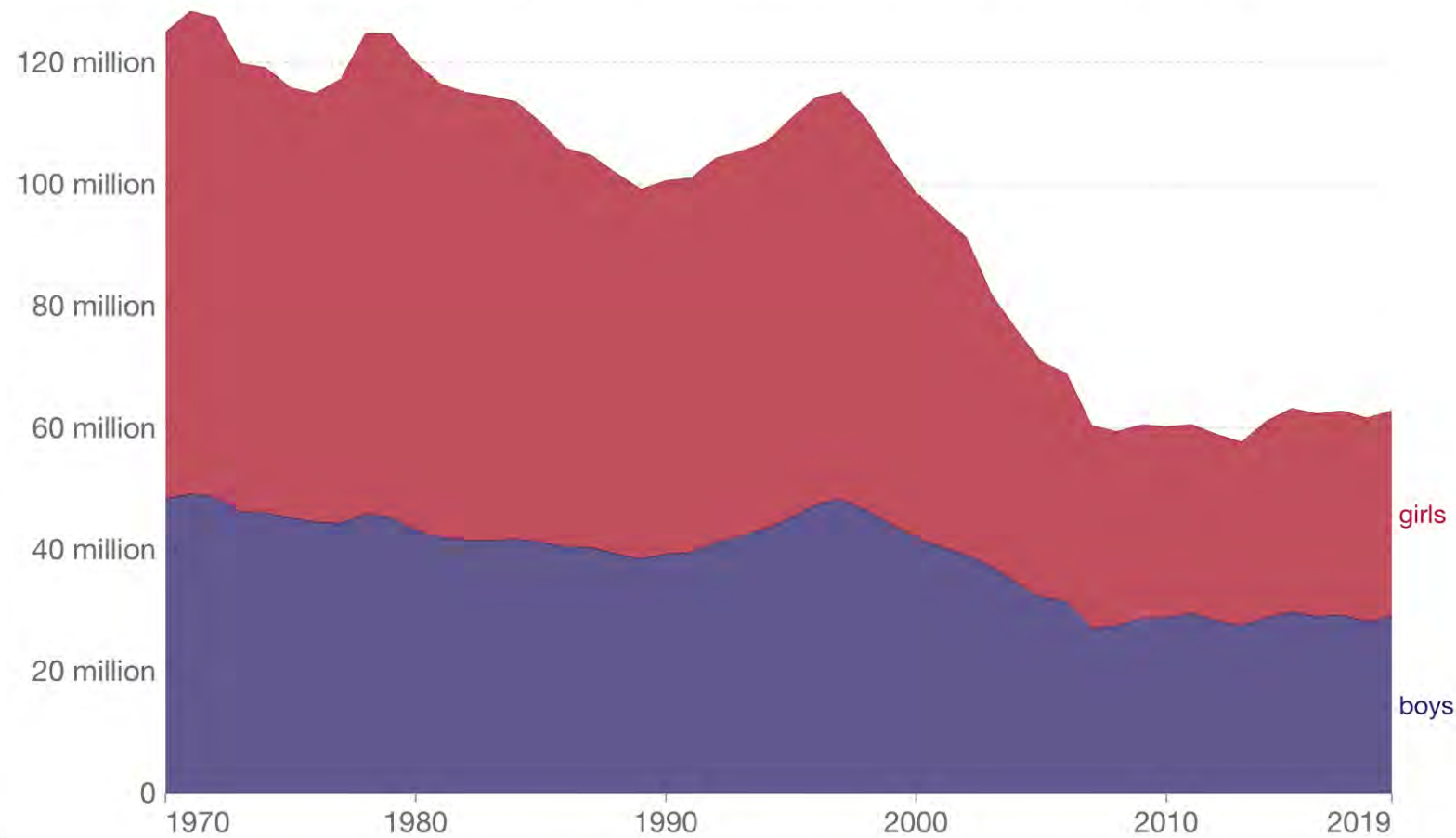
# Is Africa's population dividend under threat? Why Learning Poverty matters

- The learning poverty indicator was launched by the World Bank and the UNESCO Institute for Statistics in 2019 to spotlight the global learning crisis.
- It measures the share of children who cannot do basic arimathics, read and comprehend a simple text by age of 10 (UNESCO, & WB 2019)
- It is a combined measure of schooling and learning
- High school enrolment and being in school does not equal learning

## Girls and boys of primary school age who are out-of-school, World, 1970 to 2019

Our World  
in Data

Children in the official primary school age range who are not enrolled in either primary or secondary schools.



Source: UNESCO Institute for Statistics via World Bank

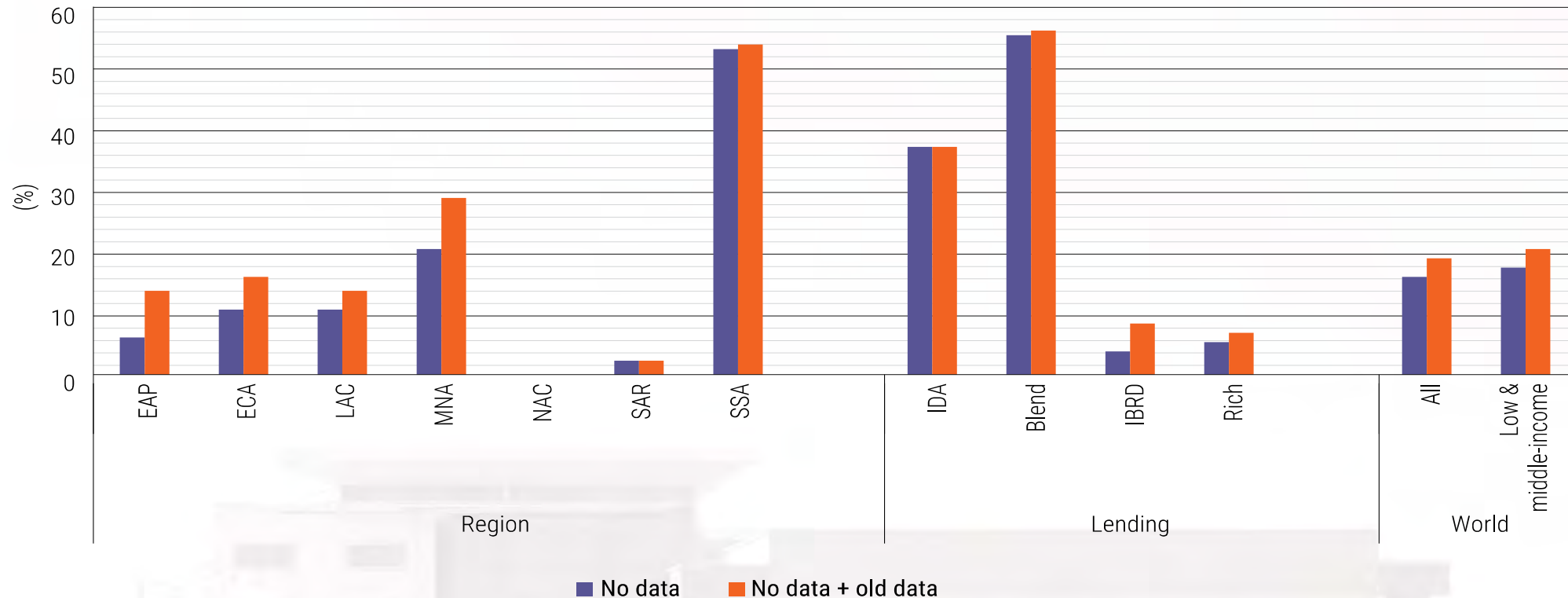
OurWorldInData.org/primary-and-secondary-education • CC BY

## UNESCO & World Bank (2022) End Learning Poverty. What will it take?

Estimates, over 90Mil  
children in SSA are out of  
school

# We don't know enough about this...

**Figure 2: Data gaps in measuring Learning Poverty: Share of population of children in countries with no or dated learning assessment data, by region, World Bank lending status, and income level**

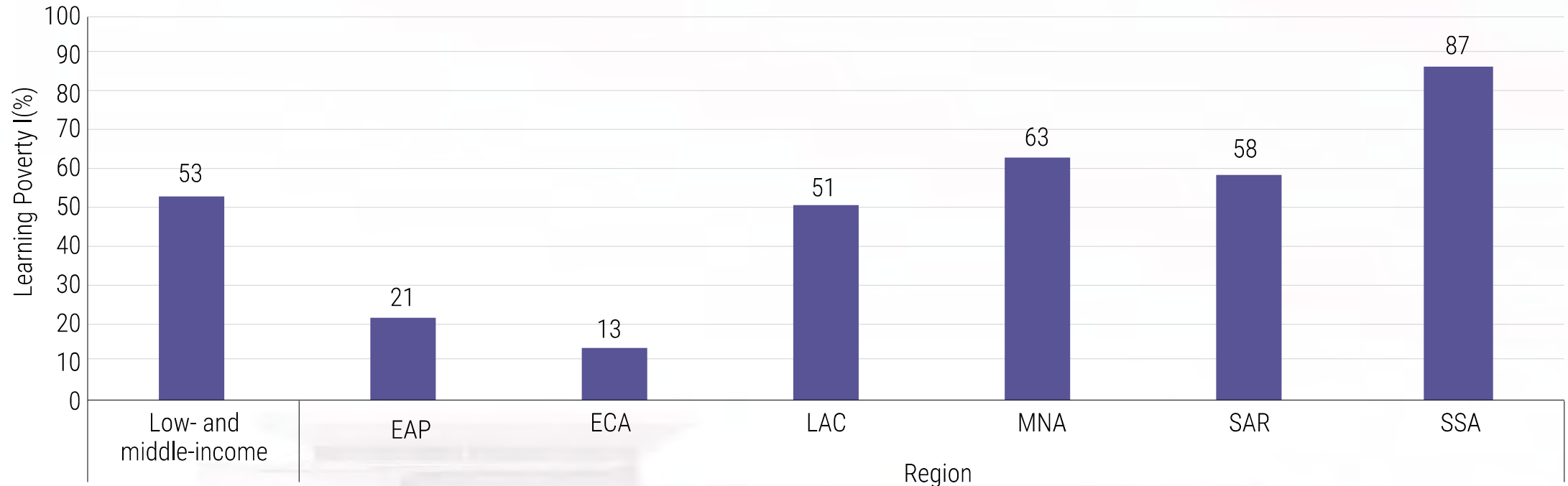


Source: Azevedo and others (2019) using the Global Learning Assessment Database (<https://github.com/worldbank/GLAD>).

Note: Low-, middle-, and high-Income data include only assessments since 2010; Old data include assessments from before 2010; Regions: East Asia and Pacific (EAP), Europe and Central Asia (ECA), Latin American and Caribbean (LAC), Middle East and North Africa (MNA), North America (NAC), South Asia (SAR), and Sub-Saharan Africa (SSA); Lending Categories: International Development Association (IDA); International Bank for Reconstruction and Development (IBRD); and IDA/IBRD Blend countries, meaning those that are IDA-eligible based on per-capita income levels but also creditworthy for some IBRD borrowing (Blend). Low- and middle-income includes six high-income IBRD clients.

# What we know is that

**Figure 3: Percent of children who are learning-poor in low- and middle-income countries, by region**



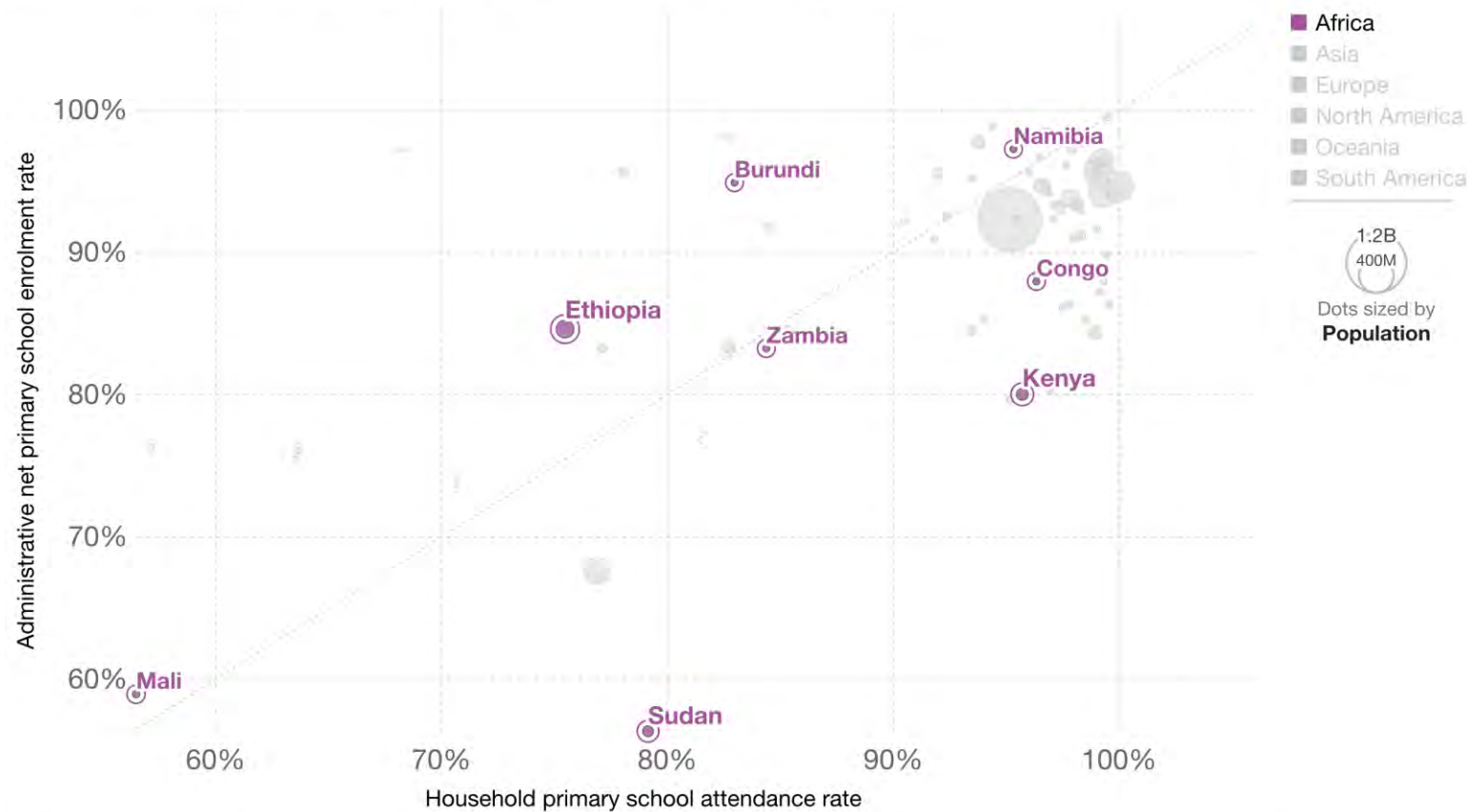
Source: Azevedo and others (2019) using the Global Learning Assessment Database (<https://github.com/worldbank/GLAD>); UIS Enrollment Data; and UN population numbers.  
Note: The MNA Learning Poverty (as in all other regions) only include low- and middle-income countries. The inclusion of the MNA high-income countries, changes the Learning Poverty in the region to 59%.

# Our concern is those children in school

## Children in school: administrative vs. household survey data, 2017

Administrative data measures the ratio of primary school-aged children enrolled in school, while household survey data estimates the percentage of primary-aged children attending primary education<sup>1</sup>.

Our World  
in Data



Source: UNESCO (via World Bank); Demographic and Health Surveys (DHS)

OurWorldInData.org/global-education • CC BY

## UNESCO & World Bank (2022) End Learning Poverty. What will it take?

SSA pre-COVID 57%

Post-COVID 86%

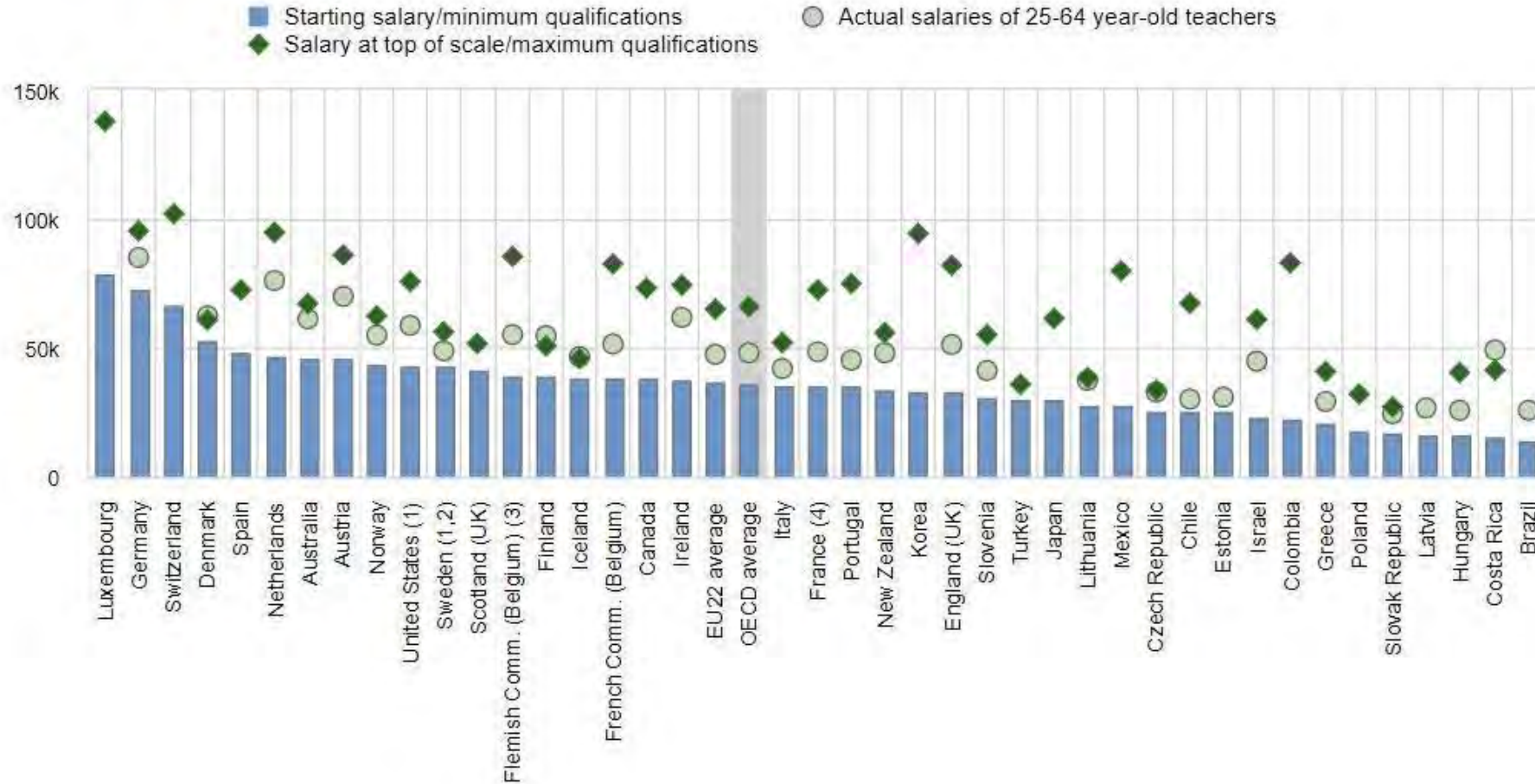
Nigeria an est 20.2 million children and youth out of school, Ethiopia (10.5 million), the Democratic Republic of Congo (5.9 million) and Kenya (1.8 million).





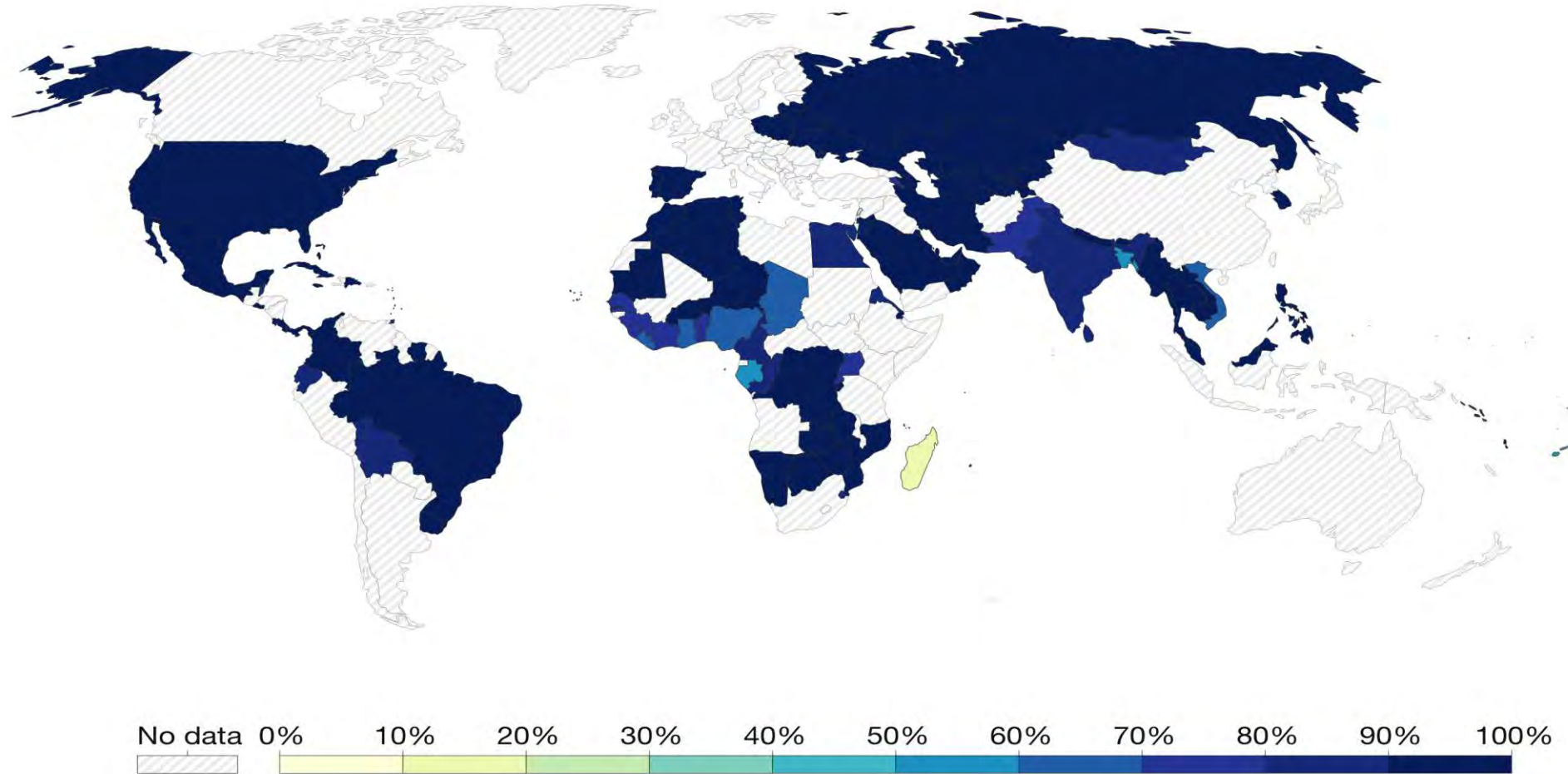
# Is remuneration of teachers the issue?

Annual salaries of teachers in public institutions, in equivalent USD converted using PPPs



# Percentage of teachers in primary education who are qualified, 2022

A qualified teacher is one who has the minimum academic qualifications necessary to teach at a specific level of education in a given country. This is usually related to the subject(s) they teach.



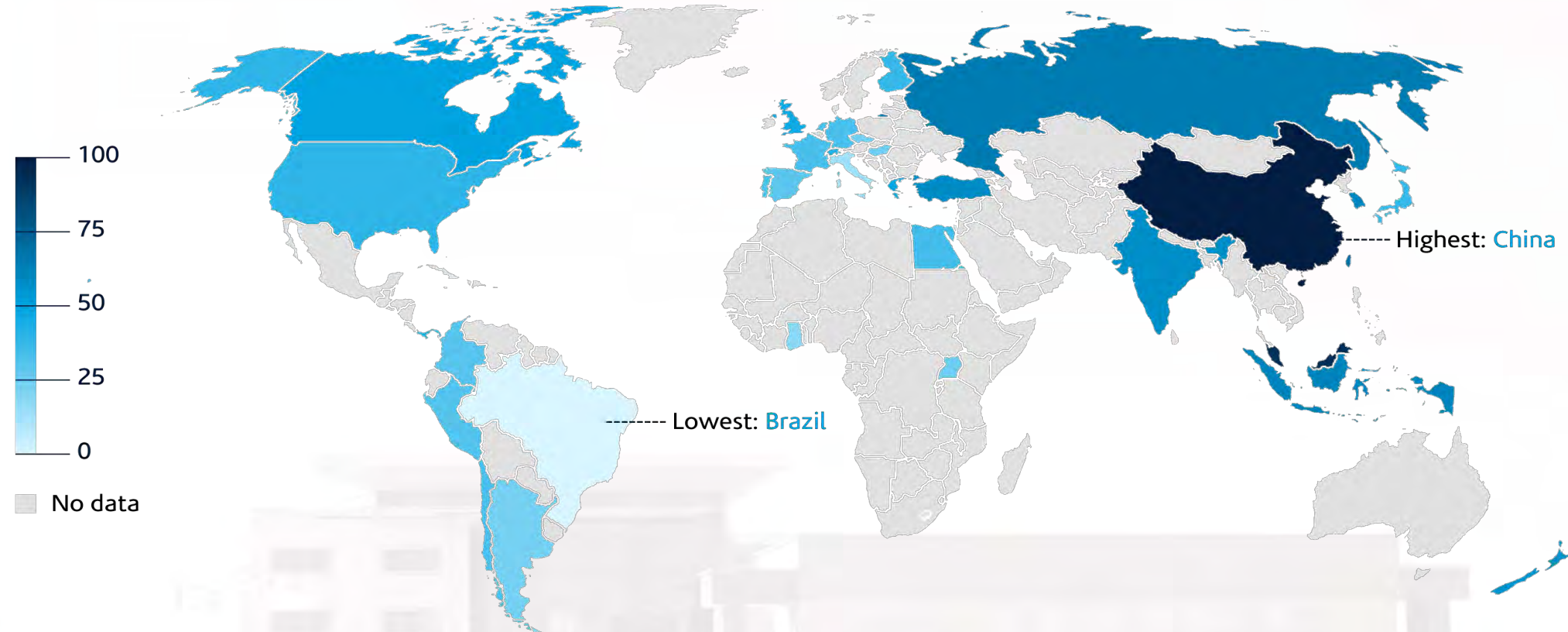
Source: UNESCO Institute of Statistics (UIS)

[OurWorldInData.org/teachers-and-professors](https://OurWorldInData.org/teachers-and-professors) • CC BY

# Status of Teachers Worldwide

**This is what teacher status looks like around the world**

Teacher social status in 35 countries, indexed on a relative scale  
1-100 (lowest to highest)



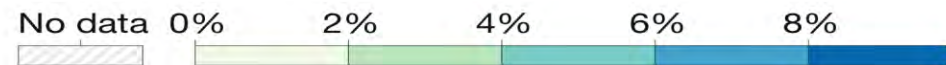
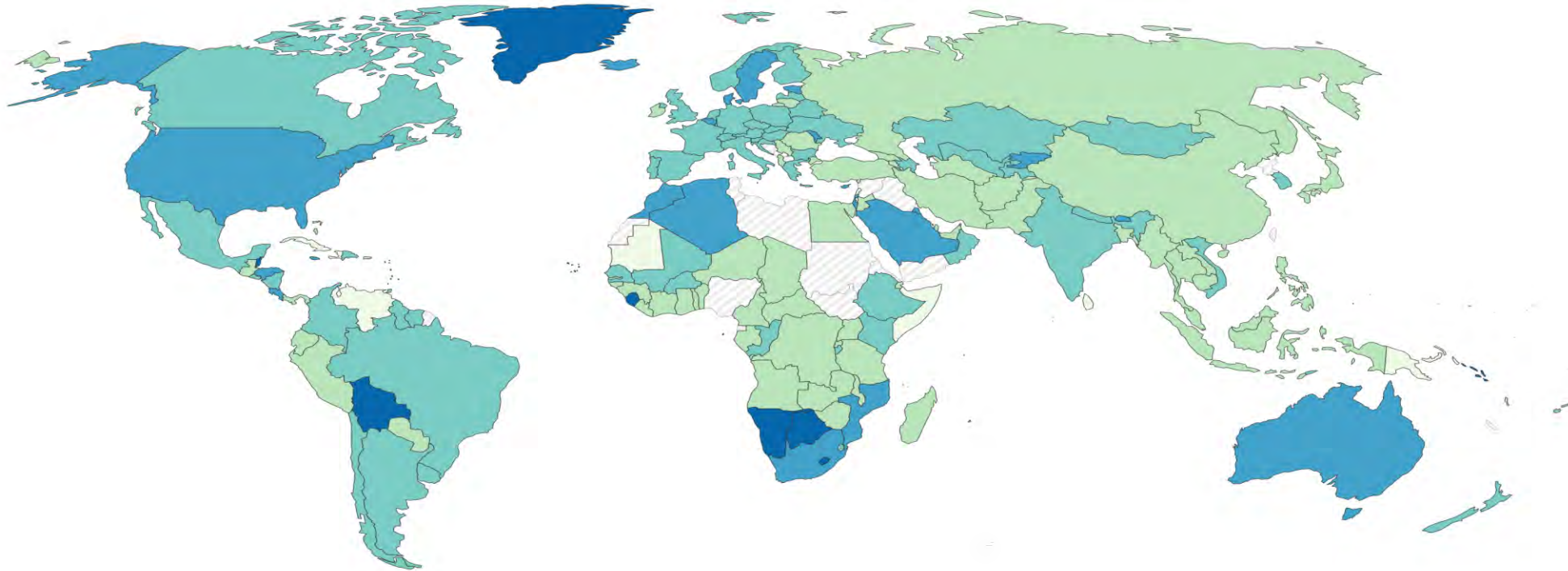
Source: *Global Teacher Status Index 2018*, Varkey Foundation

# Government Spending in Education

## Public spending on education as a share of GDP, 2021

Total general government expenditure on education (all levels of government and all levels of education), given as a share of GDP.

Our World  
in Data



Source: UNESCO via World Bank

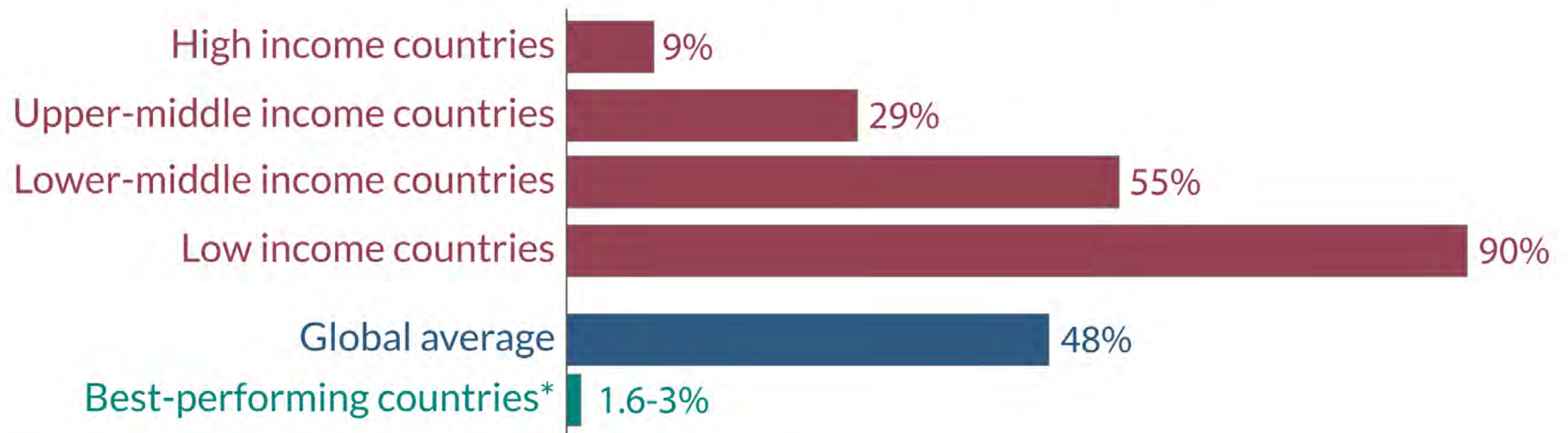
OurWorldInData.org/financing-education • CC BY

Prof. Dr. Kenneth Matengu, Vice Chancellor

## Learning Poverty related to income levels

What share of children are not able to read with comprehension by the end of primary school age?

Our World  
in Data



Data: João Pedro Azevedo et al (2021) – Will Every Child Be Able to Read by 2030?

\*Among the best countries are Austria, Finland, Hong Kong, Italy, Kazakhstan, Lithuania, the Netherlands, Russia, Sweden, Singapore, and the UK.

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# Should we worry about the African future?



## Our research must be focused on fighting learning poverty **because...**

- **Economic Impact:** A population lacking functional literacy and numeracy skills cannot fully participate in the modern workforce, hindering economic growth and productivity.
- **Inequality Reinforcement:** Learning poverty reinforces existing inequalities, perpetuates cycles of poverty from one generation to the next.
- **Innovation and Competitiveness:** A poorly educated population stifles innovation and competitiveness, making it challenging for African countries to thrive in a globalized world.
- **Social Cohesion:** Education is a cornerstone of social cohesion. A lack of access to quality education can contribute to social unrest and conflicts, further destabilizing regions and threatening sustainable futures.

This is the challenge to the epistemological  
existence of universities

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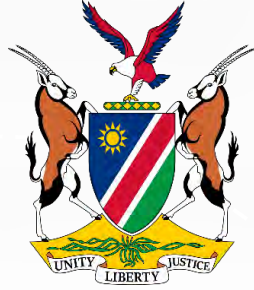
As higher education institutions, we must go wherever  
we are needed, whenever we are needed

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Addressing challenges, such as energy crisis, climate  
change, requires an educated populace capable of  
conversion of natural resources into wealth

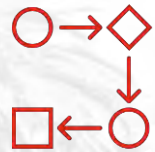


# Challenges



Drastic reduction of GRN subsidy from

2017	2022
N\$1,08 Billion	N\$ 892 Million
Student @25000	Students @29500

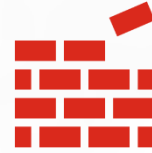


The university is no longer able to operate as effectively as desired.



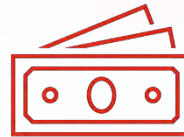
Human Capital challenges

Retention, accreditation, compliance:



Infrastructure:

Incomplete Buildings



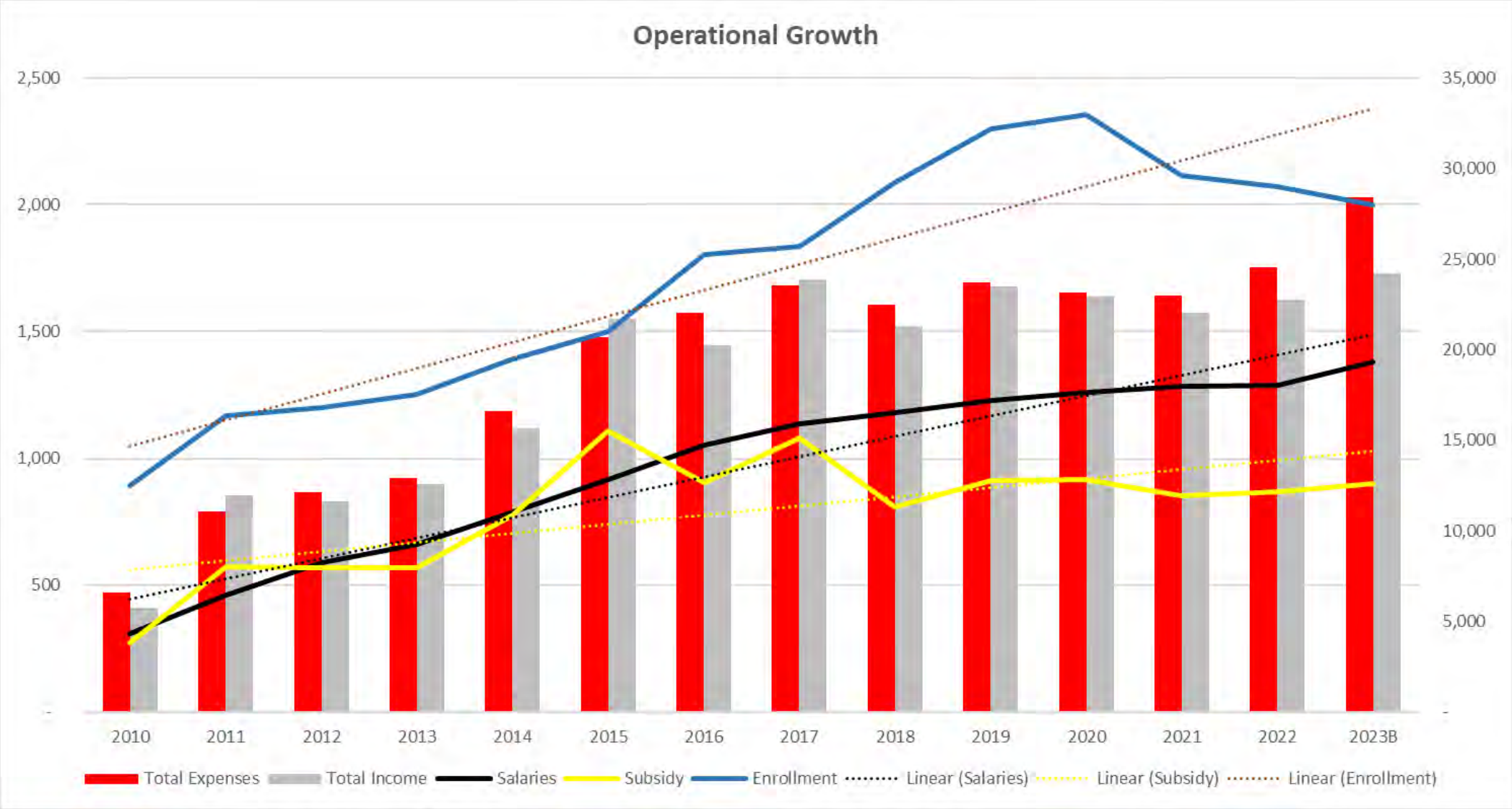
Finance: PAYE



Delayed Academic Programmes:

Bachelor in Marine Engineering, Agricultural engineering, specialist programmes in medicine

# Challenges



# UNAM's Commitment to Namibia remains...



Thank you!



The  
ENGAGED@30  
University  
1992 - 2022