Opportunities and platforms for balneological training in Nasarawa State University, Keffi, Nigeria

K'tso Nghargbu, Rifkatu Nghargbu, Suleiman Bala Mohammed, Bala I Ahmed II

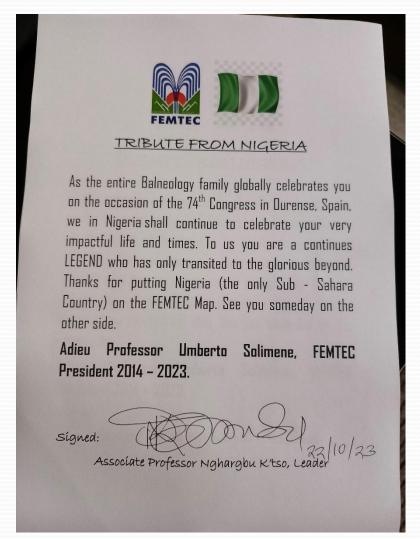
Nasarawa State University, Keffi, Nigeria







SPECIAL TRIBUTE

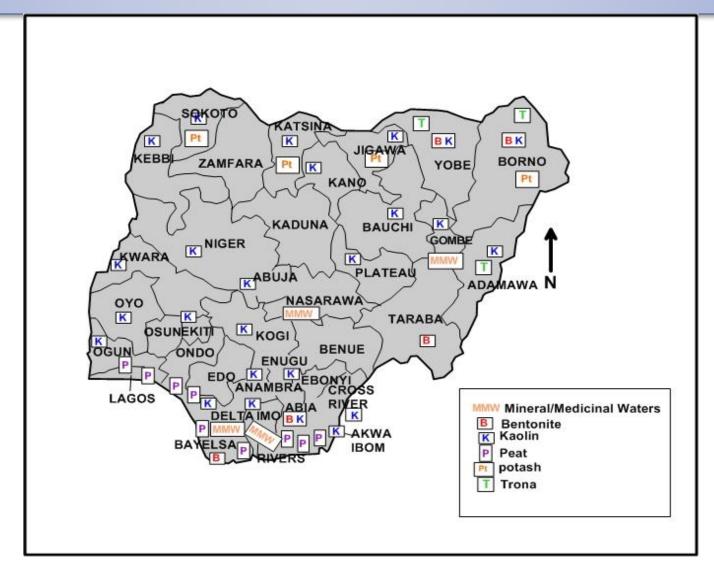




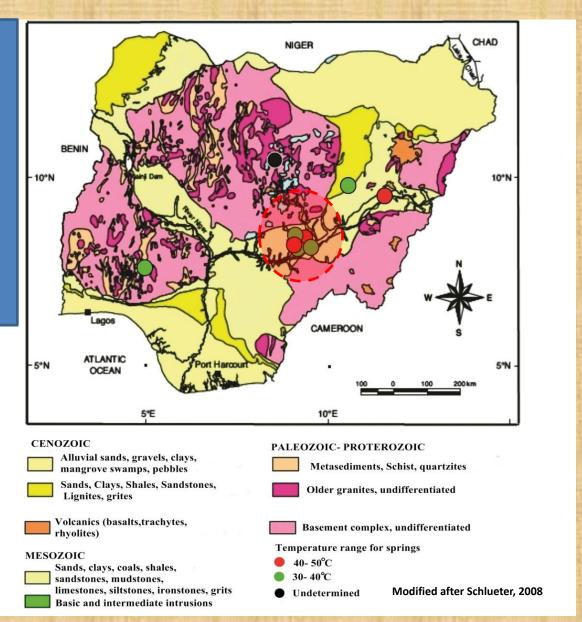
NIGERIAN BALNEOLOGICAL RESOURCES

S/N	Balneological Resource	Location				
1.	Mineral/medicinal waters	Niger-delta onshore/offshore oilfields (Rivers, C/Rivers, A/Ibom, Delta, Edo, Bayelsa, Imo & Ondo), Middle-Benue Trough (Nasarawa), Upper Benue Trough (Adamawa), and Ekiti State				
2.	Medicinal clays (bentonite, kaolinite, illite, and montmorillonite)	Abia, Adamawa, Bayelsa, Akwa Ibom, Anambra, Bauchi, Borno, C/River, Delta, Ekiti, Imo, Jigawa, Kano, Katsina, Kebbi, Kogi, Kwara, Niger, Ogun, Oyo, Plateau, Sokoto, Enugu, Gombe, Taraba, Yobe, FCT				
3.	Peat	Niger-delta, coastal states of Lagos, Ogun, Ondo, Edo				
4.	Trona	Adamawa, Yobe, Borno				
5.	Potash	Katsina, Borno, Jigawa, Sokoto				

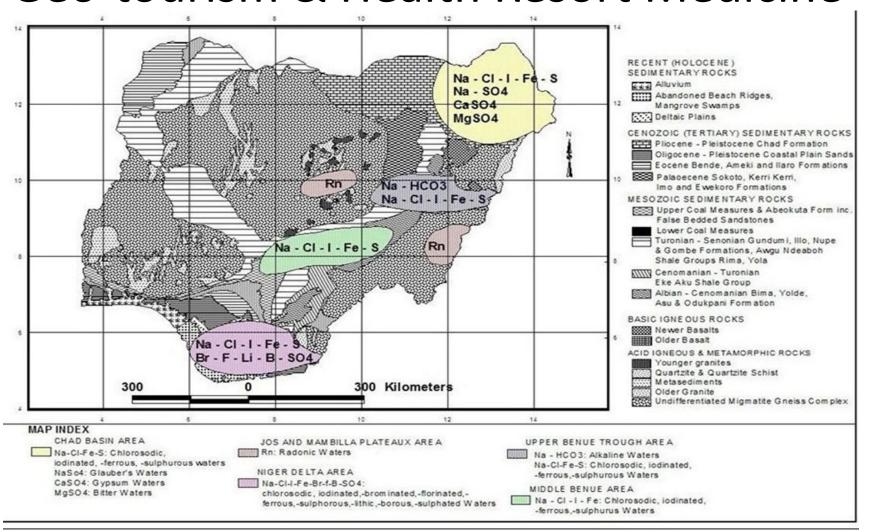
NIGERIAN BALNEOLOGICAL RESOURCES MAP



GEOLOGY AND ORIGIN OF THE BRINES WITHIN THE STUDY AREA



The Nigerian Prospects for Geo-tourism & Health Resort Medicine



		COORDINATES					SOME PHYSICAL PARAMETERS				
SPRING NAME	COUNTRY	LATITUDE (N)			LONGITUDE (E)						
		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	pН	Eh(Ms)	TDS(g/l)	Temperature
Tafadek	Niger	17	23	19.2	7	57	27.5	7.74	1.09	0.62	46
Possotome	Benin	6	31	21.7	1	58	12.6	7.74	0.82	0.52	43
Zagnanado	Benin	7	13	10.3	2	23	55.2	6.08	0.02	0.01	29.6
Atchabita	Benin	6	53	39.3	2	27	14.6	7.23	0.56	0.33	40.2
Hetim-Sota	Benin	6	35	15	2	30	17	7.23	1.07	0.6	47
Ruwan Zafi (Adm)	Nigeria	9	28	46	11	30	6.9	7.23	0.51	0.31	44.2
Ikogosi	Nigeria	7	35	40.8	4	58	50.3	7.23	0.08	0.04	35.6
Wikki	Nigeria	9	45	11.1	10	30	40.3	7.24	0.01	0.01	32.9
Ruwan Zafi (Kd)	Nigeria	10	25	35.9	8	30	49.8				
Akiri	Nigeria	8	22	51.3	9	20	10	7.22	10.89	6.27	46.5
Ruwan Gishiri	Nigeria	8	26	55.5	9	4	29.6	7.23	11.9	6.77	35.8
Ruwan Zafi, Awe	Nigeria	8	6	1.06	9	8	2.35	7.23	16.02	9.11	39.5
Tangarahu	Nigeria	8	7	44.4	9	29	58.6	7.23	14.16	8.06	34
Bitrus	Nigeria	8	11	25.3	9	2	44.9	7.23	16.24	9.23	42.7

	Parameters	Akiri Spring, Awe, Nigeria		Ruwan Zafi, Awe, Nigeria	Tangarahu, Awe, Nigeria	Bitrus (Borehole), Awe, Nigeria	Ruwan Zafi Adamawa	Ikogosi	Wikki
Site Measurements	Date of Sampling	30th July. 2011	[
MMeasurements	Coordinates	8°22 ^I 51.3 ^{II} N. 9°20 ^I 10 ^{II} E	8° 26 ^I 55.5 ^{II} N. 9°4 ^I 29.6 ^{II} E	8°6 ^I 1.06 ^{II} N. 9°8 ^I 23.5 ^{II} E		8° 11 ¹ 25.3 ¹¹ N. 9°2 ¹ 44.9 ¹¹ E	9°28 ^I 46 ^{II} N. 11°30 ^I 6.9 ^{II} E	7°35 ^I 40.8 ^{II} N. 4°58 ^I 50.3 ^{II} E	9°45 ¹ 11.1 ^{II} N. 10°30 ^I 40.3 ^{II} E
	Water Temperature (°C)	46.5	35.8	39.5	34	42.7	44.2	35.6	32.9
	Mineralisation, (g/l)	6.27	6.77	9.11	8.06	9.23	0.31	0.04	0.01
	Electrical Conductivity, Eh (mS)	10.89	11.9	16.02	14.16	16.24	0.51	0.08	0.01
	Hydrogen Ion Exponent, (pH)	7.22	7.23	7.23	7.23	7.23	7.23	7.23	7.24
Laboratory Measurements	Date of Laboratory Analysis	29 th September. 2011							
	Mineralisation,(mg/l)	5863.41	6701.45	9010.24	8578.05	9015.14	442.63	93.66	66.03
	Electrical Conductivity, Eh(mS/cm)	10.197	11.49	15.09	13.688	15.087	0,5133	95.70	67,07
	Hydrogen Ion Exponent, (pH)	6.91	6.92	6.95	6.65	6.66	7.38	6.35	6.14
	Ca ²⁺ mg/l	110.22	108.22	40.08	40.10	44.10	9.62	8.82	6.01
	SO ₄ ²⁺ mg/l	<1,00	<1,00	<1,00	<1,00	<1,00	<1.00	<1.00	<1.00
	NH_4^{1+} mg/l	4.65	< 0.05	< 0.05	6.15	5.00	< 0.05	< 0.05	< 0.05
	Na ¹⁺ mg/l	2000.00	2335.00	3270.00	3100.00	3255.00	93.34	2.00	4.94
	K ¹⁺ mg/l	67.20	54.70	71.90	73.45	75.25	10.00	1.07	1.56
	Mg ²⁺ mg/l	20.66	20.05	43.75	36.46	38.90	2.43	5.35	1.94
	Fe ^{2+. 3+} mg/l	0.15	0.25	0.10	0.35	0.15	< 0.01	< 0.01	0.15
	Mn ²⁺ mg/l	0.12	< 0.01	< 0.01	0.05	0.08	< 0.01	< 0.01	< 0.01
	F ¹⁻ mg/l	0.87	0.68	0.77	0.79	0.78	0.69	0.17	0.06
	Cl ¹⁻ mg/l	3155.00	3615.00	4963.00	4697.12	4965.00	20.20	3.89	6.38
	Br ¹⁻ mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05
	I ¹⁻ mg/l	< 0.02	< 0.02	0.04	0.25	0.25	< 0.02	< 0.02	< 0.02
	HCO ₃ ¹⁻ mg/l	268.40	408.08	263.10	263.10	263.10	273.80	53.70	29.50
	NO_2^{1-} mg/l	<0.02	< 0.02	<0.02	<0.02	< 0.02	< 0.02	<0.02	<0.02
	NO_3^{1-} mg/l	21.96	20.59	15.10	14.20	< 0.88	< 0.88	1.30	2.87
	HB ₂ mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.50	< 0.50	< 0.50
	H ₂ SiO ₃ mg/l	39.68	35.96	31.00	31.93	31.93	17.36	17.36	12.77
	Total Hardness (mg/cm ³ CaCO ₃)	343	336	267	238	258	32	42	22

The Springs



Plate I: Akiri Spring, Awe, Nigeria



Plate III: Ruwan Zafi, Awe, Nigeria



Plate II: Ruwan Dumi, Awe, Nigeria



Plate IV: Tangarahu, Awe, Nigeria

The Springs

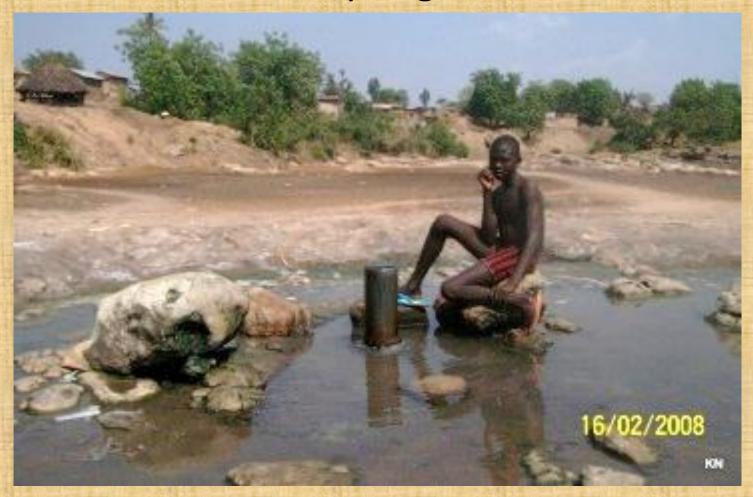
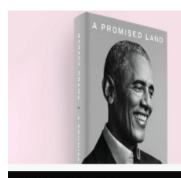


Plate V: Bitrus (flowing borehole), Awe, Nigeria





Limited Time Offer

Subscribe to BusinessDay and stand a chance to win a copy of 'A Promised Land' by Barack Obama



*Terms and conditions apply.

Tuesday, February 16, 2021 Login

BUSINESS DAY

Technology v

FG approves Bill for establishment of Council for Traditional, Alternative and **Complementary Medicine** Practice in Nigeria

Anthony Ailemen - Oct 21, 2020



Subscribe

POTENTIAL RESEARCH OUTLETS

Since 1905, Copernicus index



J:STAGE Browse - About J-STAGE - Support & News -







2018 Volume 81 Issue 1

Select past volume & issue

Medicinal Water Treatments

- Dermatological conditions using Chlorosodic, sulfurous waters
- Gynecological conditions same as above
- Gastrointestinal disorders
- Bronchial tract ailments
- Blood circulation conditions
- Diabetes
- Post traumatic disorders

Basic Procedures involving Medicinal Geothermal Waters

- Bathing
- Inhalation
- Irrigation
- Drinking







Moroccan model of sustainable development of balneological resources raises hope for Africa: Mouley Yacoub Thermal Springs



Moroccan model contd.

1902 1962





27th Colloquium on African Geology, 21st to 28th July 2018, Aveiro, Portugal

Moroccan model contd.

1993



2018



27th Colloquium on African Geology, 21st to 28th July 2018, Aveiro, Portugal

MOULAY YACOUB: 2018





27th Colloquium on African Geology, 21st to 28th July 2018, Aveiro, Portugal

Moving Forward!



NARODOWY INSTYTUT ZDROWIA PUBLICZNEGO – PAŃSTWOWY ZAKŁAD HIGIENY

NATIONAL INSTITUTE OF PUBLIC HEALTH

- NATIONAL INSTITUTE OF HYGIENE
24 Chocimska Street, 00-791 Warsaw, Poland

ZAKŁAD TWORZYW UZDROWISKOWYCH DEPARTAMENT OF HEALTH RESORT MATERIALS

8 Slowackiego Street, 60-823 Poznań, Poland • Phone (+48-61) 847-01-82 • Fax (+48-61) 843-4970

HU-275/2011

29th September 2011

PHISICO - CHEMICAL ANALYSIS OF THE THERMAL WATER FROM NIGERIA

Locality of water intake	Nigeria
Type of water intake	borehole
Name	
Depth	m
Capacity	m³/h
Sampling point	water intake
Sampling date	22.07.2011; 4:30 p.m.
Receipt date	17.08.2011
Temperature of the water	at the sampling pointno data
Sample number	NR 1 NR 1918 F

I. PHYSICO-CHEMICAL PARAMETERS ANALYSIS:

1.	Colour (mg Pt)	0
2.	Turbidity (mg)	0
3.	Odeur	without any foreign odeur
4.	pH value	7,57
5.	Total hardness (mg/cm³CaCO ₃)	67
6.	Electrical conductivity measured at 25° C (mS/cm)	1,0706

. CHEMICAL PARAMETERS AND TRACE MINERAL ANALYSIS:

Value found in 1 dm3 of the water:

KATIONS

	mg/dm ³	concentration	percentage mva
Ammonium NH ₄ ⁺	5,00	0,28	0,19
Sodium Na ⁺	3255,00	141,58	94,90
Potassium K ⁺	75,25	1,92	1,29
Calcium Ca ²⁺	44,10	2,20	1,47
Magnesium Mg ²⁺	38,90	3,20	2,14
Iron Fe ^{2+/3+}	0,15	0,01	0,01
Manganese Mn 2+	0,08	0,00	
	3418,48	149,19	100 %
ANIONS	mg/dm ³	mval	mval %
Fluoride F	0,78	0,04	0,03
Chloride CI	4965,00	140,00	93,43
Bromide Br	< 0,05	-	
lodide J	0,25	0,00	- 1
Hydrogen carbonate HCO ₃	598,70	9,81	6,54
Sulphate SO ₄ ² ·	< 1,00		
Nitrite NO ₂	< 0,02	5.14, 70 0913	
Nitrate NO ₃	< 0,88		-
	5564,73	149,85	<u>100 %</u>

III. UNDISSOCIATED SUBSTANCES: mg/dm³

Boric acid as HBO₂ < 0,50

Sylicic acid as H₂SiO₃ 31,93

IV. TOTAL MINERALIZATION:

9015,14 mg/dm3

Equivalent

Equivalent

V. BALNEOLOGICAL CHARACTERISTIC:

0,9 % sodium chloride mineral water.

HU-287/2011

Contain Teresa Latour

www.pzh.gov.p

Balneo-Declaration

XXIII Congress of Polish Association of Balneology and Physical Medicine

Naleczow, Poland September 8-11, 2011

Introduction

The faculty and participants of the XXIII Congress of the Polish Association of Balneology and Physical Medicine in Naleczow, Poland we recognize the importance of defining our mission, and vision to bring the experience, expertise, and valuable balneological methods to improve the health of patients around the world.

Mission

Our mission is to improve the quality of medical care by preserving and integrating centuries old empirical, and scientific balneological methods into modern medicine. By doing so we will help to treat chronic diseases more effectively. Our mission also incorporates the prevention of diseases through education, promotion of healthy lifestyles, and a systematic application of natural resources by trained physicians.

Vision

Education of medical providers and patients will allow them to understand the value, and integrate into their clinical practice the time-proven balneological medical methods. This is particularly important because the world's aging population requires an integrated approach to treat effectively many chronic diseases and to improve the quality of life.

We are planning to achieve our goal by establishing coordinated educational and training efforts. Our goal is to engage the finest international experts in the field of balneology and to task them with developing the best training and educational materials. These experts will work in a collaborative manner. They will adhere to the highest ethical standards, and work steadfast to bring our mission to fruition. Also, they will respect any regional, cultural, and ethnic differences. All educational materials will be available to those who seek knowledge, and who consider the best interest of their patients as their primary goal. The educational materials will also be available to all patients who want to improve their health. Our collaborative endeavor is not only our duty, but also a tribute to many of those who dedicated their lifetime work to this cause. We consider a great honor to continue this work for the benefit of eliminating diseases, and improving health and wellbeing of people around the world.

Project Outline

We recognize that this long-term project will be implemented in different phases.

However, as the first step in this long process, the group of experts who were present at the XXIII Congress of the Polish Association of Balneology and Physical Medicine in Naleczow, Poland discussed and proposed the following points for future work:

- Identify the participants of this project. These participate will include, but will not be limited to experts, national and international societies, and specialized committees.
- Develop mutually agreed upon terminology that could be easily cross- referenced, and published internationally (an example is provided as a reference).
- Develop an outline for an international textbook that would be dedicated to the principles and practice of balneology and climatology.
- 4. Develop a format and timeline for completing such a modern textbook.
- 5. Identify potential financial resources and select a publisher.

Reference:

Thermal medicine: "an organized system of providing health benefits to patients in health resorts (and other specified locations) by using mainly natural, therapeutic resources, climatic properties, and education to promote healthy lifestyles, prevention, treatment, and rehabilitation of chronic diseases".

Signatures

The following members, representing local, national, and international balneological organizations participated in the discussion, supported, and signed this declaration;

International Society of Medical Hydrology and Climatology

Professor Zeki Karagulle

European Scientific Committee on Thermalism

Professor Rosalba Vanni | Cana Che 0

World Federation of Hydrotherapy and Climatotherapy

Professor Umberto Solimene

Japanese Society of Balneology Climatology and Physical Medicine

Dr. Shigeko Inokuma

Portuguese Society of Medical Hydrology and Climatology

Professor Pedro Cantista

Turkish Society of Spa Medicine and Balneology

Professor Zeki Karagull

Polish Society of Balneology and Physical Medicine

Professor Irena Ponikowska

Polish Association of Balneology and Physical Medicine-American Chapter

Professor David Ferson

Polish Association of Balneology and Physical Medicine-Nigerian Chapter

Professor Krzysztof Schoeneich

K'tso Naharahu

CURRENT RESEARCH EFFORTS

FEDERAL MEDICAL CENTER, KEFFI



SPECIAL BALNEOLOGICAL PROJECT

TITLE:
A RANDOMIZED CONTROLLED TRIAL ON EFFECTIVENESS OF
MINERALIZED WATER IN THE MANAGEMENT OF DERMATOSES IN
HIV-INFECTED SUBJECTS

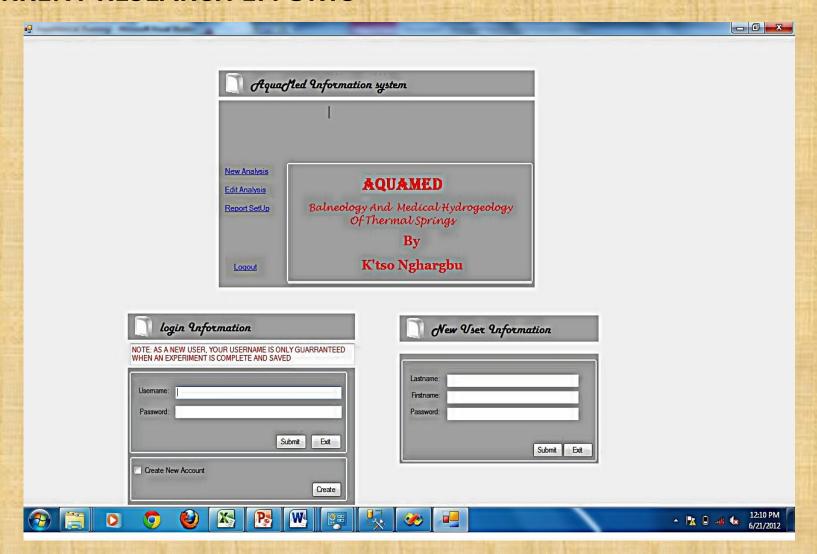
Patient code	 -
Hospital ID:	

Study objectives: To ascertain the effectiveness of mineralized water in the treatment of skin diseases among HIV infected patients.

Methodology

- **i. Study Design**: The study is double blinded randomized controlled trial
- **ii. Study Population**: The study population shall be HIV infected persons with skin diseases attending clinic at Federal Medical Centre (FMC), Keffi
- **iii. Sample Size Determination**: There are no secondary sources of data on skin infection among HIV patients either at FMC, Keffi or at the national level and there is no evidence of similar studies to this. For these reasons we decided to use 100 as our sample size.
- **iv. Sampling Method**: One hundred HIV patients with skin disease that met the selection criteria shall be selected from patient attending antiretroviral clinic at Federal Medical Centre (FMC), Keffi. These hundred patients shall be divided into two groups by systematic random sampling. All selected subjects shall be allocated coded number that shall only be known to particular persons that are not an assessor.
- v. Data Collection Instrument: Relevant information shall be obtained from the patients or care-giver as the case may by using a close ended questionnaire to be administered by the interviewers. The nature and duration of the skin disease shall be noted and any drug(s) or remedies she/he is currently on shall be recorded. Treatment and the tap water shall be applied to the infected part(s) of the skin for 20 minutes two times a day. This shall be by tepid application using towel or emersion in the water. Serial 7 days interval photographs of the affected part(s) shall be taken and progress of action of treatment followed up for four weeks. The interviewers shall be attending medical doctors or nurses trained for this study.

CURRENT RESEARCH EFFORTS



CURRENT RESEARCH EFFORTS



PRELIMINARY VISITS









FEMTEC - 74th General Assembly and Scientific Congress, Ourense, Spain

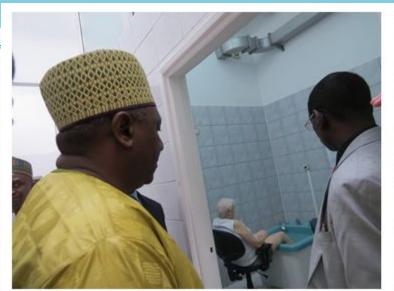








FEMTEC - 74th General Assembly and Scientific Congress, Ourense, Spain









FEMTEC - 74th General Assembly and Scientific Congress, Ourense, Spain







FEMTEC - 74th General Assembly and Scientific Congress, Ourense, Spain

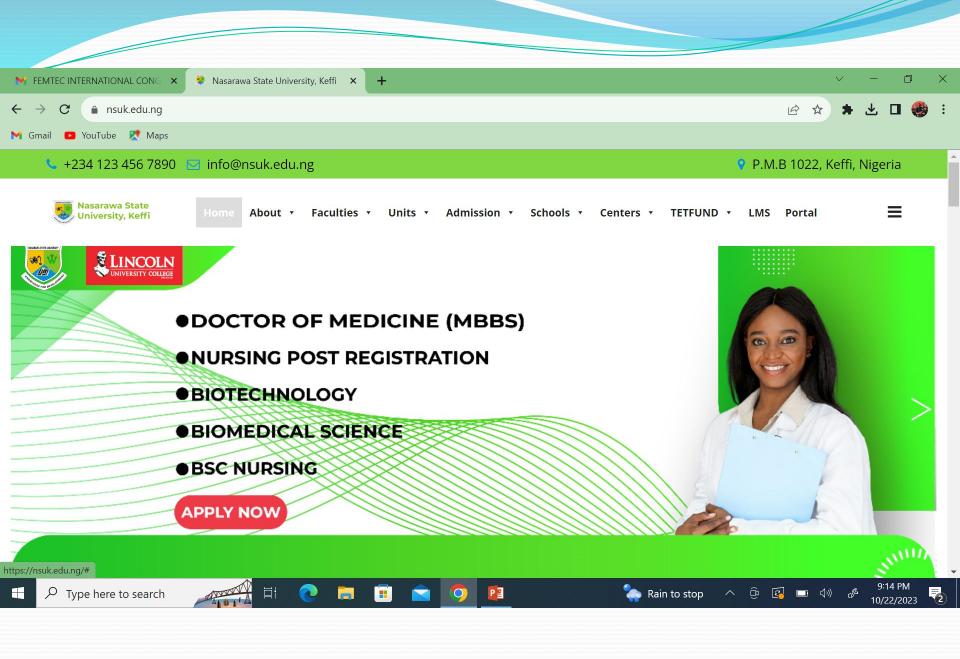
THIS IS WHERE WE ARE TODAY

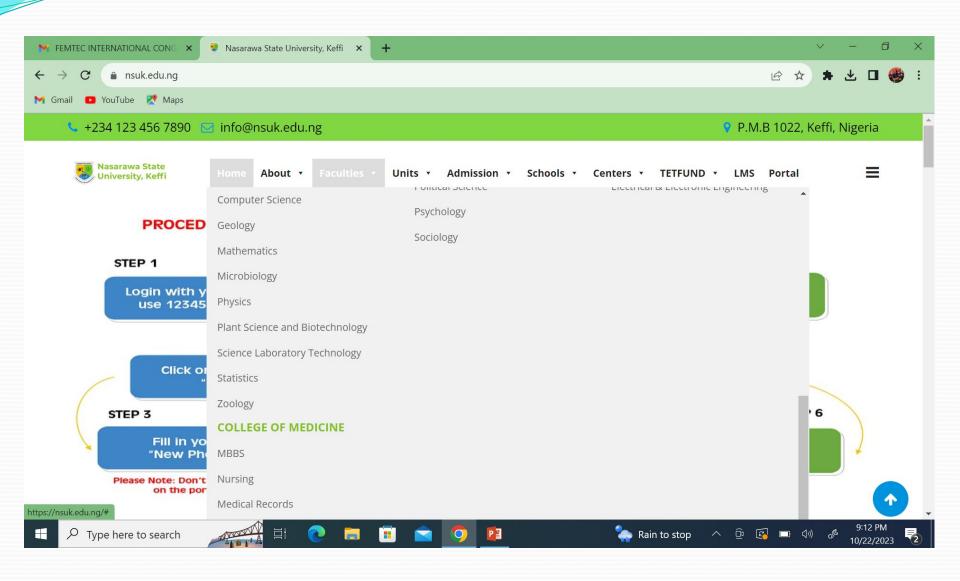
- Faculty of Medicine and JACMEDGEO Center established
- Set up a working Group/Implementation Agenda
- Seeking partners and collaborators within and outside Nigeria – some gotten
- Continues curriculum development

COLLEGE OF MEDICINE & JACMEDGEO CENTER

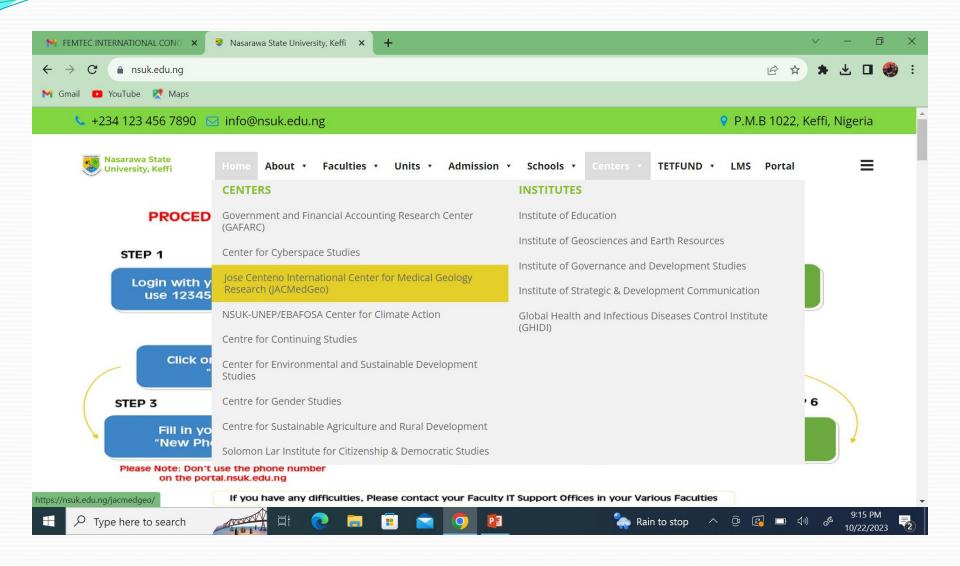








FEMTEC - 74th General Assembly and Scientific Congress, Ourense, Spain



FEMTEC - 74th General Assembly and Scientific Congress, Ourense, Spain

MoU/Partnerships



Emerging Partnership

The Romanian Group





CONCLUSION









Appreciation









