

Beni-Suef University (BSU):

Presence of Research Centres with a specific focus on environmental sustainability



1. Faculty of Earth Science and Faculty of Postgraduate Studies for Advanced Sciences have centers and laboratories that are concerned with the conservation, development and good management of water resources through the purification of drinking water and sewage treatment. In addition, they help to conduct advanced researches and studies to solve different environmental problems achieving sustainable development goals such as reducing carbon dioxide emissions. As described below:

1.1. Faculty of Postgraduate studies for Advanced Sciences is characterized by the presence of a strong infrastructure of integrated devices and laboratories and it has different innovative programs and plans concerning renewable energy as shown:

a) The faculty includes a Department of Renewable Energy Science and Engineering, which is the first of its kind to integrate energy sciences, is concerned with manufacturing materials used in energy storage and conversion with engineering manufacturing of energy tools from solar energy, batteries and fuel cells, to contribute to alternative solutions for electricity and fuel.

b) It has a central lab for thin film protection used in solar cell applications. The current generated can be used to power various appliances or it can be stored in batteries to be used when required.

<https://www.facebook.com/advancedsciences/videos/437018341678633/>

https://www.psas.bsu.edu.eg/ContentSide.aspx?section_id=11742&cat_id=18

https://www.psas.bsu.edu.eg/Content.aspx?section_id=5780&cat_id=18

c) Cement manufacture contributes greenhouse gases and cement sector is the third largest industrial source of pollution, emitting more than 500,000 tons per year of greenhouse gases. Hence, the Faculty of Postgraduate studies for Advanced Sciences offers cement chemistry and technology program as a distinct and unique program that is the only one in Egyptian universities. This program aims to improve cement characters and to put different pathways for low-carbon cement production.



Cement chemistry and technology lab

- d) Environmental and Energy Department is concerned with giving many master's and doctorate degrees as well as diplomas in more than 10 programs specialized in fields of energy, environment, climate change, cement chemistry and technology and quality control. From 2014 to 2022, a large number of degrees was registered and awarded as displayed by the attached figure:

https://www.psas.bsu.edu.eg/ContentSide.aspx?section_id=696&cat_id=18&fbclid=IwAR3jEC1bRlotL

Number of registered and awarded degrees (M.Sc., Ph.D. and diplomas)

year	M.Sc.R	M.Sc. A	Ph.D.R	Ph.D.A	Diplome R	DiplomeA
2014	2	0	6	0	65	51
2015	38	0	17	0	88	67
2016	39	1	7	1	130	80
2017	27	7	9	2	181	120
2018	44	9	9	2	360	262
2019	28	16	10	5	466	364
2020	36	10	8	2	853	637
2021	49	19	10	4	119	286
2022	32	22	8	5	221	210
total	295	84	84	21	2483	2077

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- e) The Central Laboratory and Environment and Water Lab at Faculty of Postgraduate Studies for Advanced Sciences. It contains many devices and tools necessary to conduct analyzes and measurements of water pollutants, and analyzes for different companies and factories inside and outside Beni-Suef Governorate. It helps in making decisions and recommendations necessary to solve many environmental problems related to water pollution and its negative impact on the health of the citizen, which consequently affects the national economy.

<https://www.almasryalyoum.com/news/details/1334930>

<https://www.facebook.com/Central.Lab.AdvancedScience>

https://www.bsu.edu.eg/Content.aspx?section_id=5739&cat_id=18



Environment and water and Energy laboratories (Beni-Suef University –Faculty of Postgraduate Studies for Advanced Sciences, Beni-Suef)

<https://www.facebook.com/advancedsciences/videos/437018341678633/>

<https://onedrive.live.com/?authkey=%21ACSSZACPjy8IKhQ&cid=A7313899D7BABF6E&id=A7313899D7BABF6E%21116&parId=root&o=OneUp>

<https://www.facebook.com/advancedsciences/videos/459802619399287/>

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https://www.psas.bsu.edu.eg/Content.aspx?section_id=5745&cat_id=18

https://www.psas.bsu.edu.eg/Content.aspx?section_id=5780&cat_id=18

- f) The Excellence Center for the economic production of approved nanometric materials aims to establish a small certified factory to produce specific and approved nanometric materials needed by society and by industry, to be an example of linking research with industry. Clean energy storage, safe and highly efficient energy devices can be designed using mixed nanometric materials. The center project is funded from the Science and Technology Development Fund at the Academy of Scientific Research. The Science and Technology Development Fund participates in setting some items in it to ensure the achievement of the project objectives,

<https://www.shorouknews.com/news/view.aspx?cdate=25022019&id=03d06323-2a6e-48fe-816b-c28d0c4325e7>

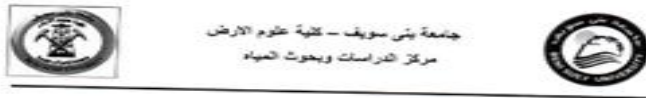
1.2. The Water Studies and Research Center at the Faculty of Earth Sciences is conducting an environmental assessment for laboratories and workshops at the university. It has many appliances that can help monitoring the environment, maintaining air quality and reducing climate changes. Where it is concerned with the following strategic goals;

- Designing and implementing treatment units for all types of sewage, agricultural and industrial water.
- Conducting studies for the establishment and rehabilitation of wastewater treatment plants
- Existing stations and raising their efficiency
- Conducting studies for the establishment and rehabilitation of existing wastewater treatment plants and raising their efficiency
- Water desalination (sea water and ground water)
- Purification of surface and ground water
- Conducting studies on rising groundwater levels and their negative effects on the surrounding environment and infrastructure, as well as the quality of agricultural soil.

<https://www.facebook.com/100024024607600/videos/1330582720708432/>

https://www.earthsc.bsu.edu.eg/Content.aspx?side_id=1611&cat_id=50

<https://www.earthsc.bsu.edu.eg/Backend/Uploads/PDF/%D9%85%D8%B7%D9%88%D9%8A%D9%87%20%D8%A7%D9%84%D9%85%D8%B1%D9%83%D8%B2-%D9%85%D8%AD%D9%88%D9%84.pdf>



جامعة بنى سويف - كلية علوم الأرض
مركز الدراسات وبحوث المياه

كلية الهندسة

فيما يلي التقرير الفني لبعض القياسات البيئية التي أجريت لبعض النقاط داخل الكلية يوم الثلاثاء الموافق 4/5/2021 بمعرفة مركز الدراسات وبحوث المياه بكلية علوم الأرض جامعة بنى سويف.

أولاً: قياسات الغلاف

HES	VOC	NO2	SO2	CO	CO 2	• غلظة الغبار
mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	
0.00	2.80	0.02	0.00	3.22	322	معمل الشرق
0.00	3.11	0.55	0.00	1.96	523	معمل الخرسانة
-	-	150	150	10 ⁷		(١)

(١) الموصلة القياسية المصرية لقياس الحد الأقصى لدرجة التلوث المحيط على النحو المتضمن عليه في القانون 1994/4 وتعديله (قانون 2009/9).

(٢) ساعة 8 ساعات

ثانياً: قياسات الهواء الخارجي

PM ₁₀	اسكن القياس
µg/m3	
0.737	معمل الشرق
0.616	معمل الخرسانة
150	(١)

(١) الموصلة القياسية المصرية لقياس الحد الأقصى لدرجة التلوث المحيط على النحو المتضمن عليه في القانون 1994/4 وتعديله (قانون 2009/9).



جامعة بنى سويف - كلية علوم الأرض
مركز الدراسات وبحوث المياه

Environmental measurements بعض القياسات البيئية

Heat stress (°C)	Illumination intensity (lux)	Noisy (dp)	امكان القياس
32	165	111	معمل الشرق
31	72	103	معمل الخرسانة
		90	(١)

الملاحظات والتوصيات:

شدة الإضاءة تحتاج لتعديل في ورشة النجارة لتحقيق الرؤية المطلوبة. سجلت شدة الصوت قيم جميعها أعلى من الحد الأقصى المسموح به للورشة الواحدة (8 ساعات) وهو 90 dp سجلت قيم درجة الحرارة متقاربة. المعاملان في مكان ضيق مقارنة بنسبة الصوت ويتضح أن التهوية ولا يوجد شفاطات بالمكان. الأخصائي في المعمل يحتاج ضرورياً لأدوات حماية شخصية وخاصة سماعات الأذن والكمامات. قياسات الابتعاثات الهوائية تمت في ظروف عادية ونوصي بالقياس في ظروف أخرى يصغها العمال بتواجد غازات كثيفة. المكان بحاجة ماسة للوحات ارشادية على كل الأجهزة والوحدات الكهربائية وتحديد مسار الخروج أو الهروب. توفير أمان لصوت جهاز كسارة تغتيت الركام ووجوب الكفوف الدوري للسمع للعاملين. وتفضلوا بقبول فائق الاحترام

د. محمد عبدالوهاب عطالله
مدير مركز الدراسات وبحوث المياه

د.أ. علي قرني سليم
رئيس مجلس إدارة مركز الدراسات وبحوث المياه



Technical report of some environmental measurements for some points within the Faculty of Engineering on 4/5/2021 by The Water Studies and Research Center



The Water Studies and Research Center at Faculty of Earth Science

2. Center for the Development of Means of Preserving the Environment at BSU aims to identify environmental problems in the province and work to solve them in a scientific manner to reduce them. It also establishes close cooperation with advisory offices, governmental and industrial bodies, and community and scientific institutions, to solve environmental problems and provide specialized technical advice. In addition, it actively contributes to the development and implementation of policies, whether at the governorate or national level.

<https://www.elwatannews.com/news/details/4316926>

<https://www.elbalad.news/4414088>

<https://www.elwatannews.com/news/details/4316926?t=mpush>

3. The University Performance Development Center through the Office of Consulting and linking research with industry. It aims to the following;

- a. Opening unconventional permanent channels of communication between the university, industry and society.
- b. Determining market and industry needs, whether training needs, technological or production needs.
- c. Providing suggestions for directing scientific research at Beni-Suef University towards the needs of the market and industry.
- d. Marketing the results of applied scientific research projects for industry and the private sector, whether local or international, in coordination with the beneficiary authorities and heads of research projects.
- e. Strengthening and activating cooperation between the industrial zones in Beni Suef or other governorates and between the universities on the other hand, which contributes to the development of the educational process and realizing the applied benefit of research at the university.
- f. The office, through experts in the university with various and different specializations, and the university units, provides technical and training consultations for the various industrial sectors.

<https://www.youtube.com/watch?v=LDz59R7pPoM>

https://www.bsu.edu.eg/Content.aspx?section_id=14560&cat_id=414

https://www.bsu.edu.eg/Sector_Home.aspx?cat_id=382

4. The university holds periodic meetings with different BSU centers to promote environmental sustainability and to discuss the energy and water saving plans for the upcoming academic years and regularly supervise and review the implementation of the campus plans. For example;

- a) Meeting with the Office of International Ranking and Sustainable Development to discuss its reports and discuss proposed recommendations about the goals of sustainable development for the university according to the vision of Egypt 2030 for the following year.
- b) Meeting with Center for the Development of Means of Preserving the Environment to identify environmental problems, to combat their causes, and to show monitoring reports and referring violations of the environment.

<https://www.shorouknews.com/news/view.aspx?cdate=26082020&id=dc23f069-d73e-4ff9-b907-cbcdeee013b3>

<https://www.elwatannews.com/news/details/4316926?t=mpush>

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https://www.bsu.edu.eg/Content.aspx?section_id=11198&cat_id=1
<https://www.facebook.com/env.bsu/>
https://www.science.bsu.edu.eg/ContentSide.aspx?section_id=6392&cat_id=10

5. Beni-Suef University made a partnership with the Center of Excellence for Water, a USAID funded project where;
- a) Centre of excellence in water research in cooperation with 5 Egyptian universities and 5 US universities funded from USAID is concerned with Exchange and training, education, governance, sustainability and research. It develops scientific solutions to water problems from lack of supplies and pollution, and develops the infrastructure for water research laboratories. It is also concerned with the discussion of the current and future challenges, innovative solutions and outlook for industrial waste water treatment in Egypt.
 - b) Beni-Suef University is the co-chair for the sustainability phase.
 - c) The Center of Excellence for water COE-Water is involved in third public private partnership PPP with Egypt aiming to long-term sustainability of the COE-water activities.
 - d) Six Research teams from Beni-Suef University won 6 competitive projects in the water research field.
 - e) BSU was the top university from the list of the winning Egyptian universities that won 48 master's scholarships from the water Excellence Center.

<https://www.almasryalyoum.com/news/details/2407801>

<https://www.facebook.com/egyptcoewater/posts/406066994067902>

https://www.bsu.edu.eg/News.aspx?NID=86718&cat_id=1&fbclid=IwAR2i3qZcCALJIWmlu#

https://www.bsu.edu.eg/News.aspx?NID=150952&cat_id=1

https://bsu.edu.eg/SingleNews.aspx?NID=152109&cat_id=1#:~:text=%D8%A7%D9%84%D8%B9%D8%A7%D9%85%D8%A9%20%D9%84%D9%84%D9%85%D8%B4%D8%B1%D9%88%D8%B9%D8%A7%D8%AA%20%D8%A7%D9%84%D8%A8%D9%8A%D8%A6%D9%8A%D8%A9-%D8%AC%D8%A7%D9%85%D8%B9%D8%A9%20%D8%A8%D9%86%D9%8A%20%D8%B3%D9%88%D9%8A%D9%81%20%D8%AA%D8%AA%D8%B5%D8%AF%D

<https://www.rayalauma.com/2022/09/15/%D8%B1%D8%A6%D9%8A%D8%B3-%D8%AC%D8%A7%D9%85%D8%B9%D8%A9-%D8%A8%D9%86%D9%89-%D8%B3%D9%88%D9%8A%D9%81-%D8%A7%D9%84%D8%AD%D8%B5%D9%88%D9%84-%D8%B9%D9%84%D9%89-6-%D9%85%D8%B4%D8%B1%D9%88%D8%B9%D8%A7/>

<https://www.youm7.com/story/2019/9/4/%D8%AC%D8%A7%D9%85%D8%B9%D8%A9-%D8%A8%D9%86%D9%89-%D8%B3%D9%88%D9%8A%D9%81-%D8%AA%D8%B4%D8%A7%D8%B1%D9%83-%D9%81%D9%89-%D9%85%D8%B4%D8%B1%D9%88%D8%B9-%D8%A5%D9%86%D8%B4%D8%A7%D8%A1-%D9%85%D8%B1%D9%83%D8%B2-%D8%AA%D9%85%D9%8A%D8%B2-%D8%B9%D9%84%D9%85%D9%89/4403354>

<https://www.egyptcoewater.org/sustainability/>

<https://wrc.wsu.edu/organization/beni-suef-university/>

<https://www.youm7.com/story/2019/9/4/%D8%AC%D8%A7%D9%85%D8%B9%D8%A9-%D8%A8%D9%86%D9%89-%D8%B3%D9%88%D9%8A%D9%81-%D8%AA%D8%B4%D8%A7%D8%B1%D9%83-%D9%81%D9%89-%D9%85%D8%B4%D8%B1%D9%88%D8%B9-%D8%A5%D9%86%D8%B4%D8%A7%D8%A1-%D9%85%D8%B1%D9%83%D8%B2-%D8%AA%D9%85%D9%8A%D8%B2-%D8%B9%D9%84%D9%85%D9%89/4403354>

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<https://www.youm7.com/story/2019/9/4/%D8%AC%D8%A7%D9%85%D8%B9%D8%A9-%D8%A8%D9%86%D9%89-%D8%B3%D9%88%D9%8A%D9%81-%D8%AA%D8%B4%D8%A7%D8%B1%D9%83-%D9%81%D9%89-%D9%85%D8%B4%D8%B1%D9%88%D8%B9-%D8%A5%D9%86%D8%B4%D8%A7%D8%A1-%D9%85%D8%B1%D9%83%D8%B2-%D8%AA%D9%85%D9%8A%D8%B2-%D8%B9%D9%84%D9%85%D9%89/4403354>

<https://www.youm7.com/story/2019/9/4/%D8%AC%D8%A7%D9%85%D8%B9%D8%A9-%D8%A8%D9%86%D9%89-%D8%B3%D9%88%D9%8A%D9%81-%D8%AA%D8%B4%D8%A7%D8%B1%D9%83-%D9%81%D9%89-%D9%85%D8%B4%D8%B1%D9%88%D8%B9-%D8%A5%D9%86%D8%B4%D8%A7%D8%A1-%D9%85%D8%B1%D9%83%D8%B2-%D8%AA%D9%85%D9%8A%D8%B2-%D8%B9%D9%84%D9%85%D9%89/4403354>

<https://www.youm7.com/story/2019/9/4/%D8%AC%D8%A7%D9%85%D8%B9%D8%A9-%D8%A8%D9%86%D9%89-%D8%B3%D9%88%D9%8A%D9%81-%D8%AA%D8%B4%D8%A7%D8%B1%D9%83-%D9%81%D9%89-%D9%85%D8%B4%D8%B1%D9%88%D8%B9-%D8%A5%D9%86%D8%B4%D8%A7%D8%A1-%D9%85%D8%B1%D9%83%D8%B2-%D8%AA%D9%85%D9%8A%D8%B2-%D8%B9%D9%84%D9%85%D9%89/4403354>

<https://www.youm7.com/story/2019/9/4/%D8%AC%D8%A7%D9%85%D8%B9%D8%A9-%D8%A8%D9%86%D9%89-%D8%B3%D9%88%D9%8A%D9%81-%D8%AA%D8%B4%D8%A7%D8%B1%D9%83-%D9%81%D9%89-%D9%85%D8%B4%D8%B1%D9%88%D8%B9-%D8%A5%D9%86%D8%B4%D8%A7%D8%A1-%D9%85%D8%B1%D9%83%D8%B2-%D8%AA%D9%85%D9%8A%D8%B2-%D8%B9%D9%84%D9%85%D9%89/4403354>

<https://www.youm7.com/story/2019/9/4/%D8%AC%D8%A7%D9%85%D8%B9%D8%A9-%D8%A8%D9%86%D9%89-%D8%B3%D9%88%D9%8A%D9%81-%D8%AA%D8%B4%D8%A7%D8%B1%D9%83-%D9%81%D9%89-%D9%85%D8%B4%D8%B1%D9%88%D8%B9-%D8%A5%D9%86%D8%B4%D8%A7%D8%A1-%D9%85%D8%B1%D9%83%D8%B2-%D8%AA%D9%85%D9%8A%D8%B2-%D8%B9%D9%84%D9%85%D9%89/4403354>

<https://www.youm7.com/story/2019/9/4/%D8%AC%D8%A7%D9%85%D8%B9%D8%A9-%D8%A8%D9%86%D9%89-%D8%B3%D9%88%D9%8A%D9%81-%D8%AA%D8%B4%D8%A7%D8%B1%D9%83-%D9%81%D9%89-%D9%85%D8%B4%D8%B1%D9%88%D8%B9-%D8%A5%D9%86%D8%B4%D8%A7%D8%A1-%D9%85%D8%B1%D9%83%D8%B2-%D8%AA%D9%85%D9%8A%D8%B2-%D8%B9%D9%84%D9%85%D9%89/4403354>



Center of Excellence for Water

CENTER OF EXCELLENCE FOR WATER BRIEF ON BENI SUEF UNIVERSITY PARTICIPATION IN THE CENTER OF EXCELLENCE FOR WATER

Project Name: Center of Excellence for Water Award Number: 72026319CA00001 Reporting Period: (February 2019 – October 2022)

Submitted by: Prof. Essam Shaban, Chief of Party of the Center of Excellence for Water

Brief on Beni Suf University Participation in the Center of Excellence for Water Activities

Participation of Beni Suf University in the Center of Excellence for Water's Activities

The following sections describe the participation of Beni Suf University in key activities from February 2019 to October 2022:

- Component I: Governance
Component II: Instructional Innovation and Curriculum Development
Component III: High-Quality Applied Research
Component IV: Exchange, Training and Scholarships

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Center of Excellence for Water

Brief on BSU partnership in the Center of Excellence for water

6. The implementing of the center for environmental monitoring and limiting the risks of climate change at Beni-Suef University will be completed by next year. It will be a unique center at the level of Egyptian universities that will strength the university's role in facing climate changes and in order to achieve the principle of sustainability and Egypt's vision of 2030.

It will aim to the following;

- a) Monitoring all environmental problems in Beni-Suef Governorate
b) Determining the type and sources of these problems, and their relationship to potential climate changes
c) Providing appropriate scientific solutions according to the type of each problem
d) Making a map of climatic challenges and all risks that threaten water and agricultural resources and air pollution
e) Creating a database of problems which results in negative effects on the environment and directing them to be enrolled in master's and doctoral degrees.
f) Establishing a number of environmental monitoring stations in cooperation to monitor carbon emissions.
g) Providing scientific advices in the field of wastewater treatment, and assessing the environmental impact of all development activities and projects at the governorate level.

https://www.youm7.com/story/2022/7/28/%D8%A5%D9%86%D8%B4%D8%A7%D8%A1-%D8%A3%D9%88%D9%84-%D9%85%D8%B1%D9%83%D8%B2-%D9%84%D9%84%D8%B1%D8%B5%D8%AF-%D8%A7%D9%84%D8%A8%D9%8A%D8%A6%D9%89-

[%D9%88%D8%A7%D9%84%D8%AD%D8%AF-%D9%85%D9%86-
%D9%85%D8%AE%D8%A7%D8%B7%D8%B1-
%D8%AA%D8%BA%D9%8A%D8%B1%D8%A7%D8%AA-
%D8%A7%D9%84%D9%85%D9%86%D8%A7%D8%AE/5851077](#)

7. Medicinal and Aromatic Plants Research Institute. It offers remarkable programs to prepare scientific competencies who conduct advanced and qualified research to compete in labor market, to maximize the importance of producing aromatic and medicinal plants, to provide solutions raising the efficiency of crops and various other things through different departments; i) Department of Biotechnology for Medicinal and Aromatic Plants, ii) Department of Medicinal and Aromatic Pharmaceuticals, iii) Production and Post-Harvest Department, and iv) Department of Chemistry of Medicinal and Aromatic Plants.
<https://medplants.bsu.edu.eg/>
8. Laser Institute For Research and Applications. The institute seeks to prepare specialized cadres with high efficiency in the use of lasers in various disciplines such as medical, engineering, basic and agricultural sciences in order to meet the requirements of the communities of these governorates.
<http://www.laserinst.bsu.edu.eg/>