

The Natural Sciences Sector  
UNESCO

# Preparing and adapting to career expectations of NGAP

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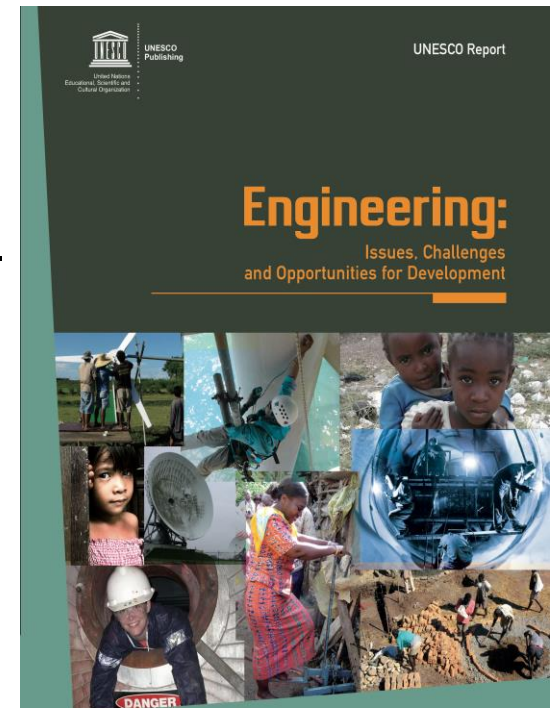
# Food for thought?

- **More people have mobile phones than toilets!** Six of the world's seven billion people have mobile phones - but only 4.5 billion have a toilet - UN Study
- Now more mobile phones in the whole of Africa than there are in the USA
- 2001: 25 million- 2012: 650 million (increase 2600%) - The Higher Times, Sept 2013
- Internet penetration at 15.6% in Africa, +83.6% UK, but in Somalia it is 1.2% - Internet World Statistics
- How do we encourage more youth to go into careers of Science and Engineering?
- Financial Reward: "Engineering degrees produce the most millionaires" (*Spear's* magazine and WealthInsight, 2013)
- It is estimated that some 2.5 million new engineers and technicians in sub-Saharan Africa - MDGs
- 1 engineer per 10 000 in sub-Saharan Africa
  - 1/311 in UK
  - 1/227 - Brazil



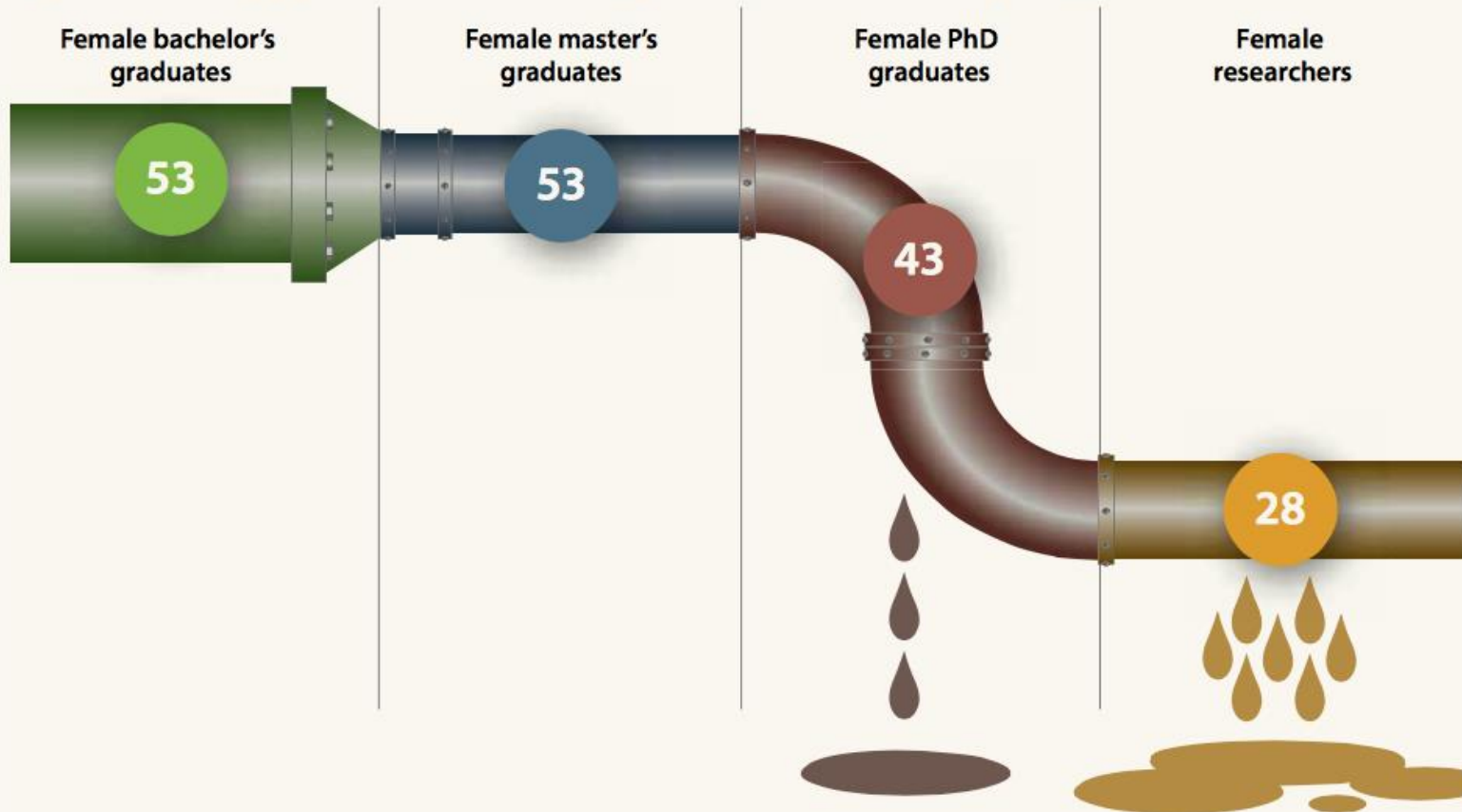
# UNESCO and Girls in STEM Education

- UNESCO - diverse in terms of Culture, Education, Communication and Information as well as Science
- *Global priorities of Gender Equality and Africa*
- *Challenges*
  - Decrease in interest among youth in studying STEM - not just a gender problem
  - STEM is stereotyped as a male-dominated field, especially “hard sciences” like maths, physics, engineering
  - Need to change mind-sets, communities and gender-role stereotypes about girls and women
  - Need for strong women role-models in STEM that encourage young women to take up a scientific career
  - Women in scientific careers - raising a family while doing research is a large challenge



# Share of Women in Research

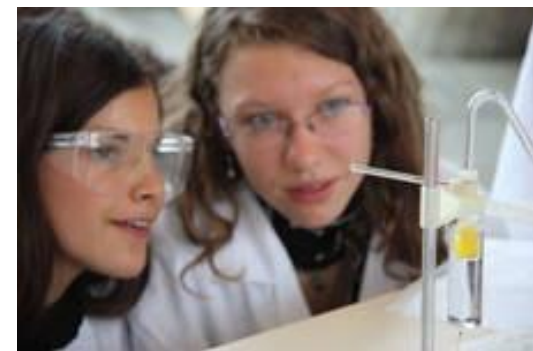
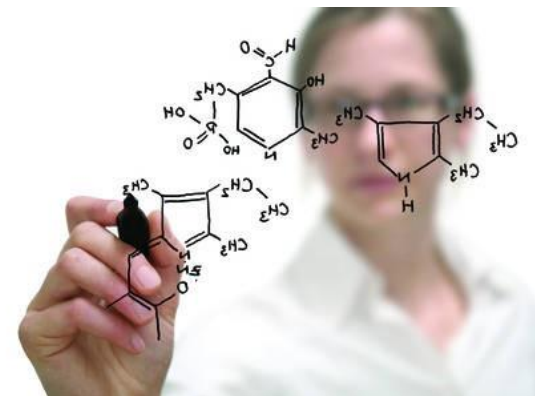
Figure 3.1: The leaky pipeline: share of women in higher education and research, 2013 (%)



Source: UNESCO Institute for Statistics estimates based on data from its database, July 2015

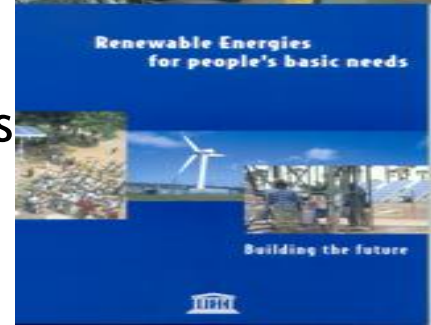
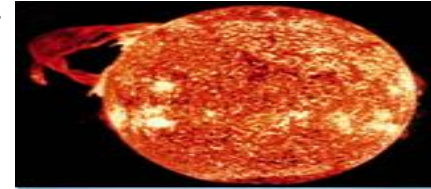
# Women in Research

- Women now account for 53% of the world's bachelor's and master's graduates and 43% of PhDs but just [28% of researchers](#)
- There are also great disparities from one region to another.
  - Southeast Europe - women researchers have obtained parity and,
  - On the verge of doing so in Central Asia and Latin America and the Caribbean - 44%
  - In the European Union, on the other hand, just one in three (33%) researchers is a woman,
  - In the Arab States - 37%
  - Women are also better represented in sub-Saharan Africa (30%)
    - than in South Asia (17%)
- More women graduates in the life sciences > 50%.
- However, in North America and much of Europe, few women graduate in physics, mathematics and computer science but, in other regions, the proportion of women may come close to parity in physics and mathematics.



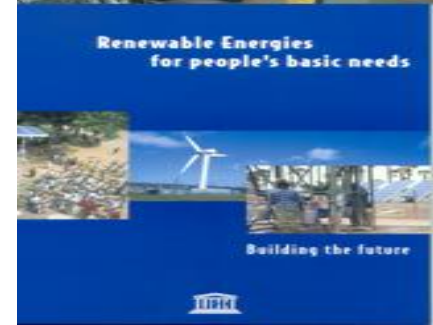
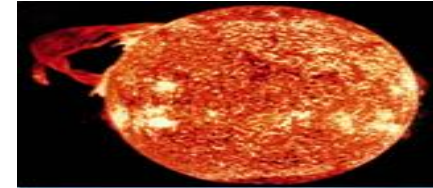
# Women in Engineering

- Women are consistently underrepresented in engineering.
- Europe and North America are generally low: 19% in Canada, Germany and the USA and
- 22% in Finland,
- but there are some bright spots: 50% of engineering graduates are women in Cyprus and 38% in Denmark.
- Regional exceptions: share of women graduating as engineers has risen in sub-Saharan Africa, for instance, in the Arab States and in parts of Asia.
- > 3/10 engineers are women in Viet Nam (31%), Malaysia (39%) and Brunei Darussalam (42%).
- Of the seven Arab countries reporting data, four observe a steady percentage or an increase;
- the highest scores come from the United Arab Emirates and Palestine (31% each), Algeria (31%) and Oman, with an astonishing 53%.



# Women in Computer Science

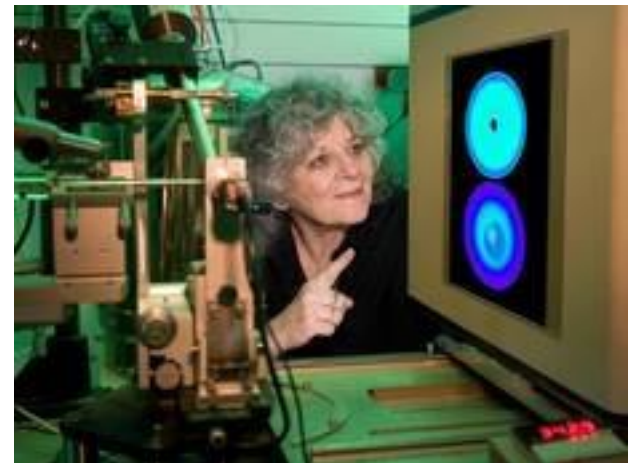
- Computer science shows a steady decrease in female graduates since 2000 - especially high-income countries.
- Exceptions in Europe include Denmark, where female graduates increased from 15% to 24% between 2000 and 2012, and Germany, which saw an increase from 10% to 17%. These are still very low levels.
- The situation in LAC is worrying: in all countries reporting data, the share of women graduates in computer science has dropped by between 2 and 13 percentage points since 2000
- There are exceptions. Turkey, the % women graduating in computer science rose from a relatively high 29% to 33%.
- India - image of engineering changed



# UNESCO-L'Oreal Partnership

Since 1998,

- L'Oréal-UNESCO Awards have recognised more than **87 laureates from 30 countries**,
  - exceptional women who have made great advances in scientific research.
  - **Two of them have gone on to receive the Nobel Prize.**
- International Fellowships have been granted to more than 2,170 women in 110 countries
- A [manifesto for women in science](http://www.forwomeninscience.com/en/manifesto) was launched in Paris on 24 March 2016, The manifesto draws attention to the need to ensure gender parity in science (<http://www.forwomeninscience.com/en/manifesto>) - > 90 000 signatures





# International Day for Women and Girls in Science

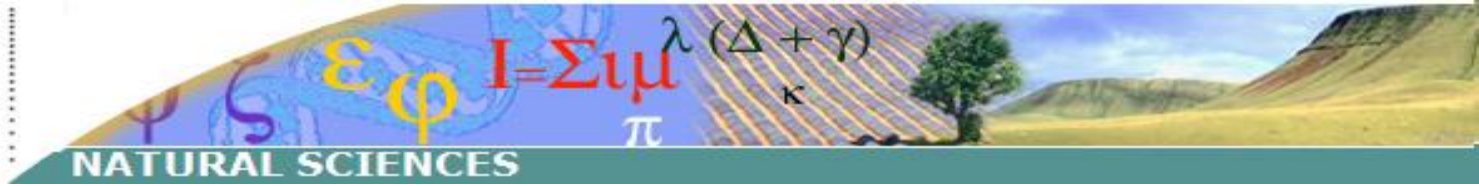
- **11 February 2016** - first International Day for Women and Girls in Science.
- To support and promote the access of women and girls and their participation in science, technology, engineering and mathematics education, training and research activities at all levels;
- **Million Girls in STEM campaign** - partnering with WomEng, launch of the campaign at the CSW in UN NY on 13 March 2017.





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## UNESCO/INTEL collaboration on STEM Education and Women

- During Mobile Learning Week in February 2015 Intel and UNESCO launched the Young Women in Engineering in Africa Acceleration Programme
- As part of the initiative, young women students in their second year of engineering undergraduate studies in South Africa are provided with a two-year scholarship
  - Mentorship
  - Research at UNESCO Category II Centres in country
- UNESCO and Intel and create an Action Brief intended to serve as a roadmap to guide gender-focused workshops for education policymakers throughout the globe.



Towards Gender Equality in  
Education Policies and ICTs  
**An Action Brief and Toolbox**

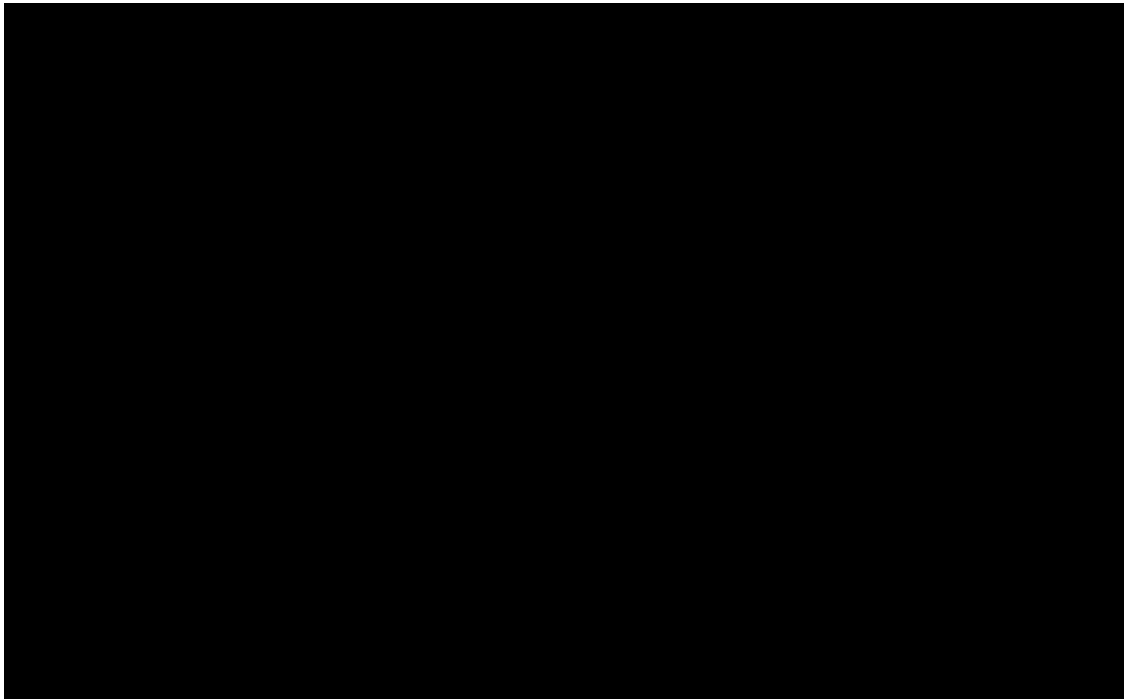
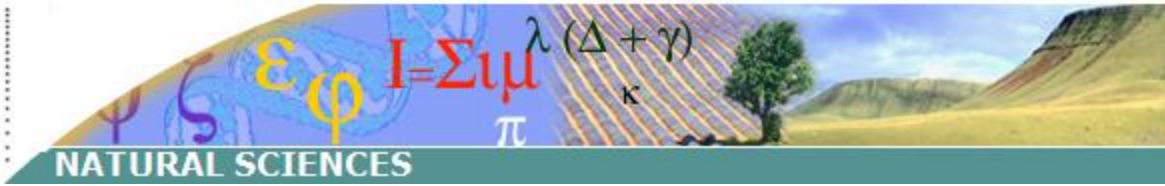
# Airbus - Fly Your Ideas

- Inspired over 20,000 students from over 100 countries to register from 650 universities.
- Proposals had to cover one of six themes identified by Airbus as key 21<sup>st</sup> century challenges for a greener aviation industry
  - Energy;
  - Efficiency;
  - Affordable Growth;
  - Traffic Growth;
  - Passenger Experience; and
  - Community Friendliness.
- The 5<sup>th</sup> edition - winners from Hong Kong University





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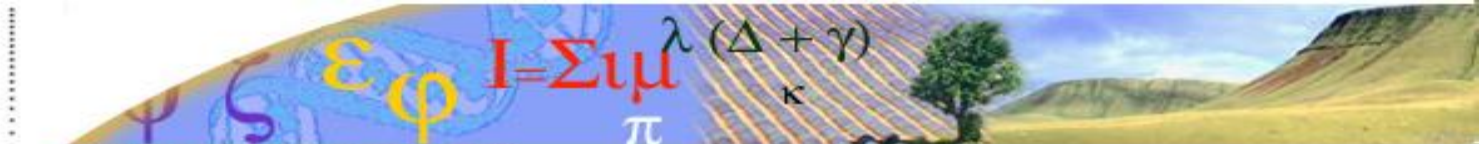


Renewable Energies  
for people's basic needs

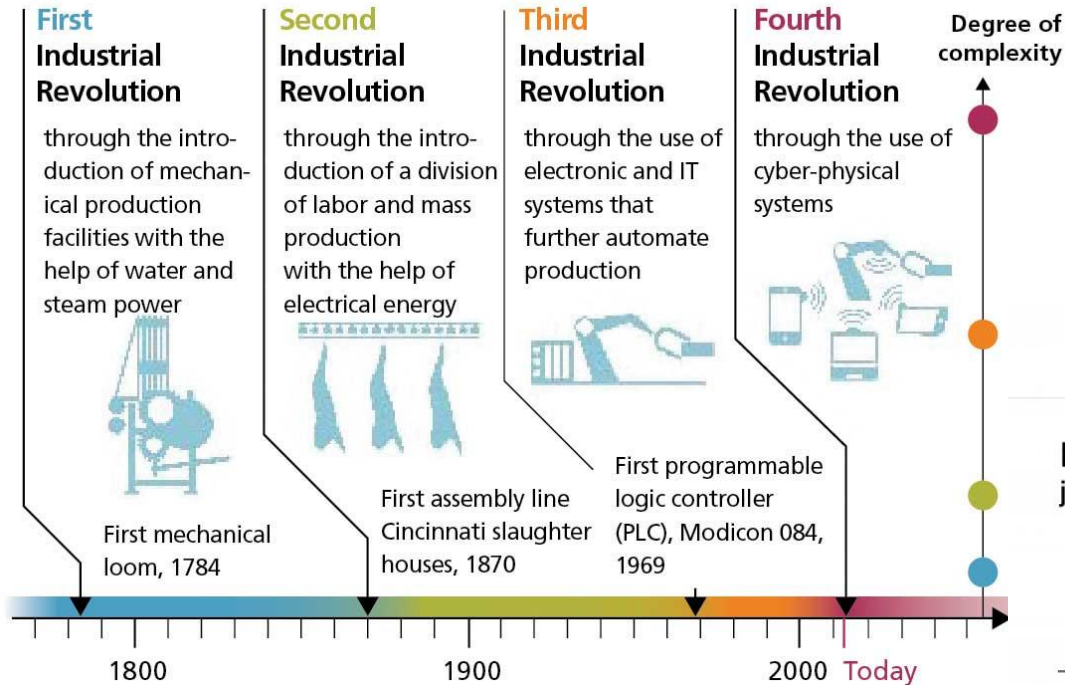


Building the future





# The Future Engineer



## Employment outlook across job families jobs change in thousands, 2015-2020

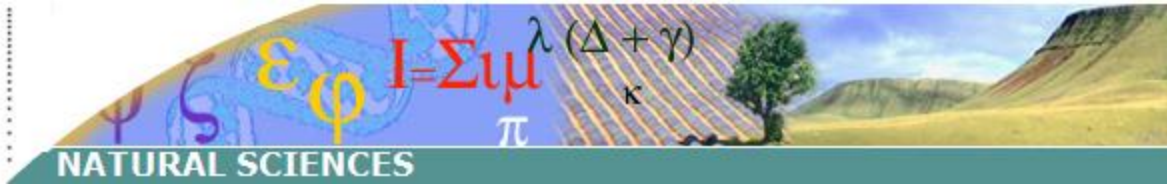


Across major economies - see report for full list.

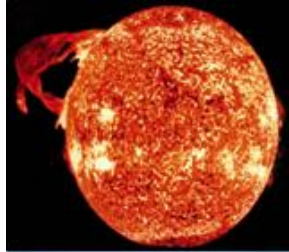
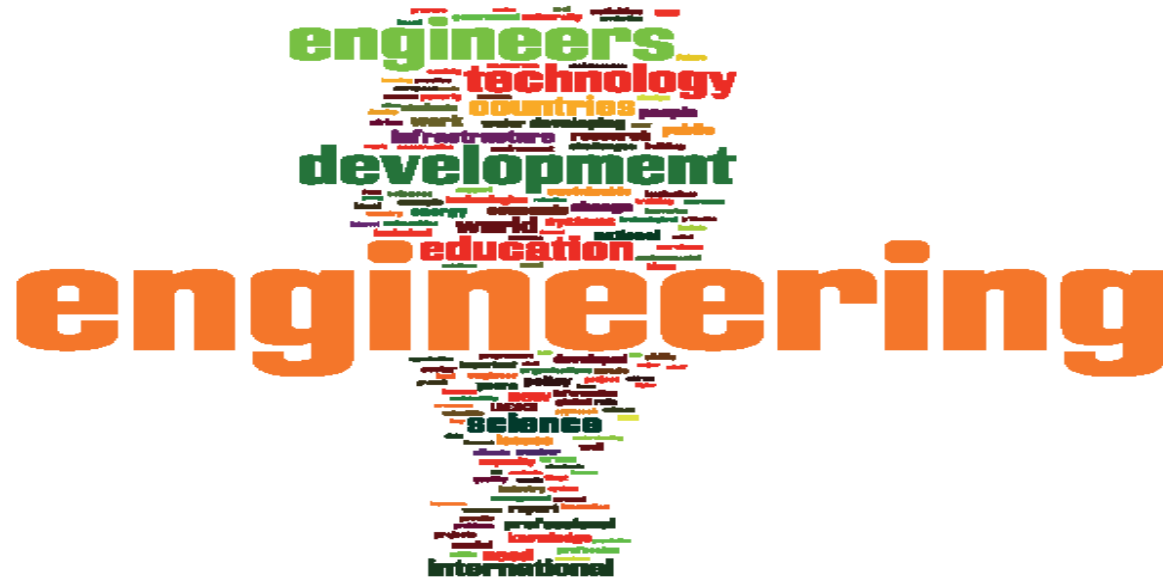
Source: Future of Jobs Report, World Economic Forum



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# Thank you!



Renewable Energies  
for people's basic needs

Building the future