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# **“SCIENCE AND THE SUSTAINABLE DEVELOPMENT GOALS”**

*By*

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# OUTLINE



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- i. Sustainable Development Goals
- ii. Guiding Principles for Science in Sustainable development Goals
- iii. The Role of Science in SDGs
  - STI Cross cutting in SDGs
  - Direct STI featuring in the Goals
  - Implications for STI on some Goals
  - Implementation of the Goals
  - Translation and Monitoring the Goals
- iv. UNESCO using science to achieve SDGs
- v. There is need to strengthen STI
- vi. Conclusion



## OVERVIEW

- With the Millennium Declaration in 2000, the United Nations launched a development agenda built around the (MDGs).
- the progress made towards these objectives, economic, social and environmental conditions were still far from being satisfactory in large parts of the world.
- Concerns for the overall sustainability of the current and future pathways grew considerably over the years.
- Therefore, the Rio+20 Conference in 2012 and the outcome document “The Future We Want” launched a process to develop a strong “Post-2015 Development Agenda” around the concept of sustainable development and universally applicable SDGs to be achieved by all countries in the world
- The result of this "Post-2015 process", the United Nations in September 2015 agreed on a new global Agenda to take the world on a sustainable pathway.
- The SDGs are a bold commitment to finish what the world started, and tackle some of the more pressing challenges facing the world today.





## OVERVIEW

- The SDGs are unique in that they cover issues that affect us all.
- They reaffirm our international commitment to end poverty, permanently, everywhere.
- They are ambitious in making sure no one is left behind.
- More importantly, they involve us all to build a more sustainable, safer, more prosperous planet for all humanity.
- The new global goals cover more ground, with ambitions to address inequalities, economic growth, decent jobs, cities and human settlements, industrialization, oceans, ecosystems, energy, climate change, sustainable consumption and production, peace and justice.
- On 1 January 2016, the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development which was adopted by world leaders in September 2015 at an historic UN Summit — officially came into force



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# SUSTAINABLE DEVELOPMENT GOALS cont.



17 goals and 169 aspirational targets with 230 indicators for sustainable human development, covering issues such as

- Ending poverty and hunger
- Ensuring healthy lives and quality education
- Combating climate change
- Protecting the global environment



# SUSTAINABLE DEVELOPMENT GOALS cont.



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## Another Way to Look at SDGs – The Five Ps



The Goals and targets will stimulate action over the next thirteen years in areas of critical importance for humanity and the planet:

**People**; determined to end poverty and hunger, in all their forms and dimensions,

**Planet**; determined to protect the planet from degradation, including through sustainable consumption and production

**Prosperity**; determined to ensure that all human beings can enjoy prosperous and fulfilling lives

**Peace**; determined to foster peaceful, just and inclusive societies which are free from fear and violence.

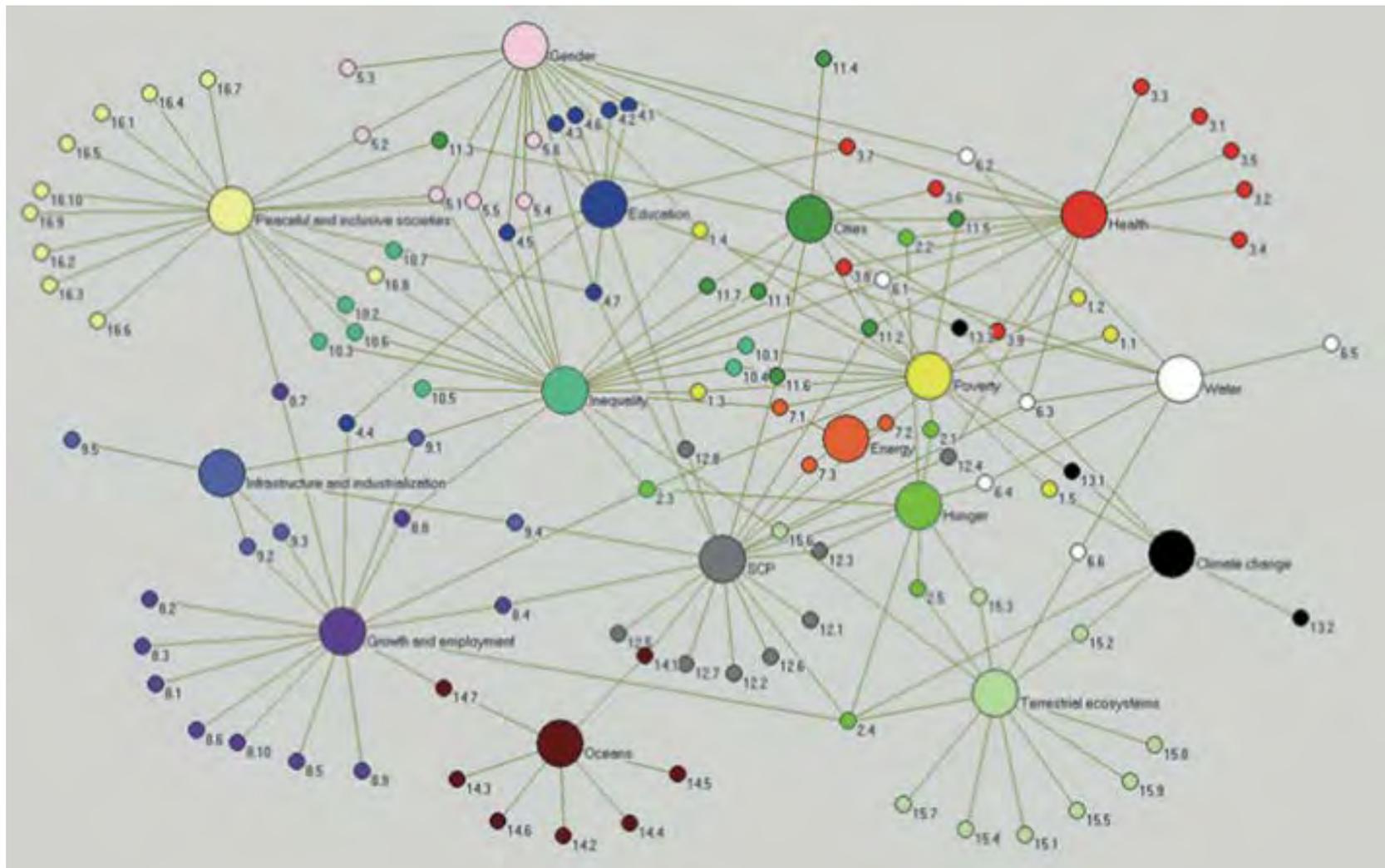
**Partnership**; determined to mobilize the means required to implement this Agenda through a revitalised Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focussed in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people.



# Goals and Targets are Interconnected



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# SCIENCE and the SDGs



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- Science, Technology and Innovation (STI) have been recognized as one of the main drivers behind economic growth and prosperity.
- In the context of the new Agenda and for achieving, the SDGs, STI play an even more central role.
- The achievement of many SDGs will heavily depend on science (STI).
- The United Nations Science Advisory Board calls upon scientists and policy-makers alike to promote a set of principles that underpin the crucial role of science for sustainable development, namely:



## GUIDING PRINCIPLES FOR SCIENCE IN SUSTAINABLE DEVELOPMENT GOALS



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- **Recognize science as a universal public good that helps in laying the foundation for a sustainable world** and is therefore more than a tool for the achievement of the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs).
- **Acknowledge basic science as a principal requirement for innovation and provide a productive scientific environment**, including long-term investments, to advance fundamental knowledge about the world.
- **Enhance diversity in science for sustainable development** by realizing gender equity in science and by building on the entire spectrum of society, including underrepresented groups and minorities
- **Strengthen science education to increase science literacy and capacity-building in science at all levels.** Access to and investments in science education and capacity-building in science at all levels need to be strengthened, especially where the appreciation of the benefits of science and the resources for sciences are less developed. Scholarships for scientific programs should be made available in each country



## GUIDING PRINCIPLES FOR SCIENCE IN SUSTAINABLE DEVELOPMENT GOALS



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- **Raise investments in science** by establishing national minimum target investments for science, technology and innovation for both basic and applied science. Raising investments in science will contribute to economic development and scientific progress. Building up and expanding scientific infrastructure, i.e. schools, colleges and universities as well as centers of excellence for frontier science, will further support science education and scientific research
- **Promote an integrated scientific approach addressing the social, economic and environmental dimensions of sustainable development and respecting the diversity of knowledge systems.** Building a sustainable world requires overcoming disciplinary boundaries. Inter-, trans- and multidisciplinary cooperation, both with regard to basic and applied science, can contribute to developing an integrated scientific approach. In this respect, international cooperation among National Academies of Sciences needs to be expanded and intergovernmental research organizations, which play an important role in ensuring sustainability, need to be strengthened.



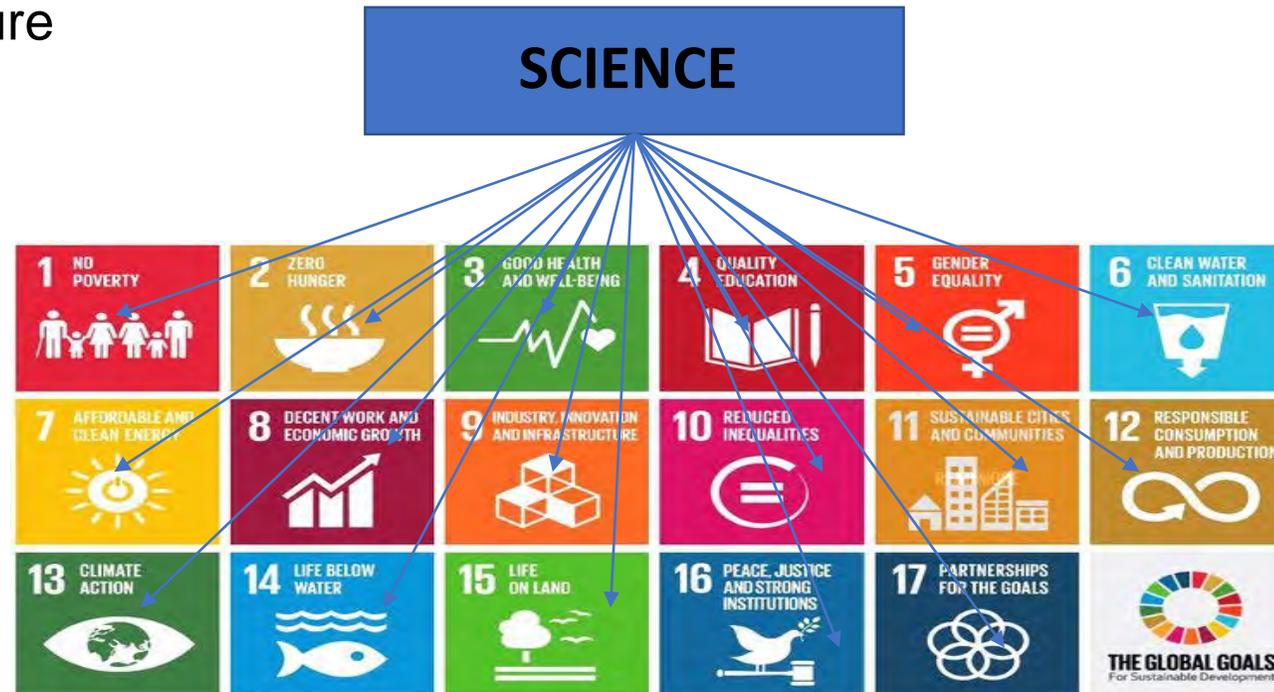
# 5 MAJOR ROLES OF SCIENCE IN SDGs.



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## 1. STI Cross Cutting in SDGs

- While there is no stand-alone goal on science,
  - There is not a single SDG in the new agenda that will not require inputs from science.
- 
- The SDGs recognize the need to mobilize science at multiple levels and across disciplines to gather or create the necessary knowledge and thus lay the foundations for practices, innovations and technologies needed to address global challenges today and in the future





# 5 ROLES OF SCIENCE IN SDGS.

## 2. STI Featuring Directly in the Goals

### INDUSTRY



9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean **and environmentally sound technologies** and industrial processes, with all countries taking action in accordance with their respective capabilities

9.5 **Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries**, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending



# 5 ROLE OF SCIENCE IN SDGs cont



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## 2. STI featuring directly in the Goals cont.

### Technology



**17.7** Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed

**17.8** Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology



# 5 ROLE OF SCIENCE IN SDGs cont



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## 3. Implications for STI on Some Goals



**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally”



**7.3 a** By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology

7.3b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support

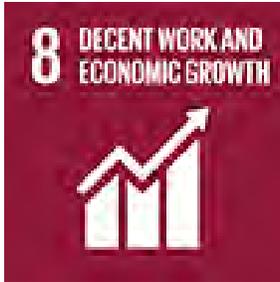


# 5 ROLE OF SCIENCE IN SDGs cont



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## 3 Implications for STI on Some Goals cont.



**8.2** Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensive sectors

**8.3** Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-small- and medium-sized enterprises, including through access to financial services



**13.3 a** Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible



# 5 ROLES OF SCIENCE IN SDGs cont



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## 3. Implications for STI on Some Goals cont.



### 14.1

By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

### Life on Land



### 15.1

By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements



# 5 ROLES OF SCIENCE IN SDGs cont



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## 4. Implementation of the Goals

- There is an increased focus on implementation in the SDGs. As part of this, the UN in September 2015, launched a “Technology Facilitation Mechanism” to promote collaboration and coordination of the use of science, innovation and technology.
- The TFM facilitate multi-stakeholder collaboration and partnerships through the sharing of information, experiences, best practices and policy advice among member states, civil society, the private sector, the scientific community, United Nations entities and other stakeholders.
- Science is central to meet the myriad of challenges set out in the SDGs.
  - ending hunger (Goal 2) requires investment into “agricultural research”;
  - ensuring healthy lives (Goal 3) requires more “research and development of vaccines and medicine”;
  - and establishing sustainable consumption and production patterns (Goal 12) means supporting “developing countries to strengthen their scientific and technological capacity”.



# 5 ROLES OF SCIENCE IN SDGs cont



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## 5. Translation and Monitoring

- A high-level political forum will oversee follow-up and review the SDGs and part of its remit will be to “strengthen the science-policy interface.”
- The need to strengthen the ability to measure and evaluate impact. Only half of countries have reliable poverty data.
  - Target 17.8 is to “increase significantly the availability of high-quality, timely and reliable data”.
  - Gaps in data, particularly in developing countries can aggravate and increase the very inequalities the SDGs set out to combat.
  - Lack of data, poor quality data and regional differences will be a massive challenge for the SDGs.
  - Scientists need to support all aspects of implementation, including ensuring that appropriate metrics, monitoring, evaluation, infrastructure and data are in place
  - Science is important in collecting, analyzing and making inference from data. Statistical methods and analyses are often used to communicate research findings and for making appropriate decisions.

# UNESCO Science Sector's contributions to the SDGs



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- Through its natural science programmes, UNESCO contributes to the overall implementation of SDGs by providing:
- **policy assistance** to support developing countries in strengthening their **scientific and technological capacity**,
- Supporting member states design effective policies, based on the best available knowledge, including **local and indigenous knowledge systems**.
- **UNESCO's IHP** devoted to water resources management, education and [International Geosciences and Geoparks programme \(IGGP\)](#) ensuring availability and sustainable [management of water](#)
- **Man and the Biosphere Programme (MAB)**, promotes the **sustainable use of terrestrial ecosystems**, including sustainable forest management, combating desertification and halting biodiversity loss.
- **UNESCO's IGGP** helps countries to build their capacities in **managing disaster and climate risk** and with their ability to cope with disasters, especially geo-hazards, tsunamis and water-related disasters.

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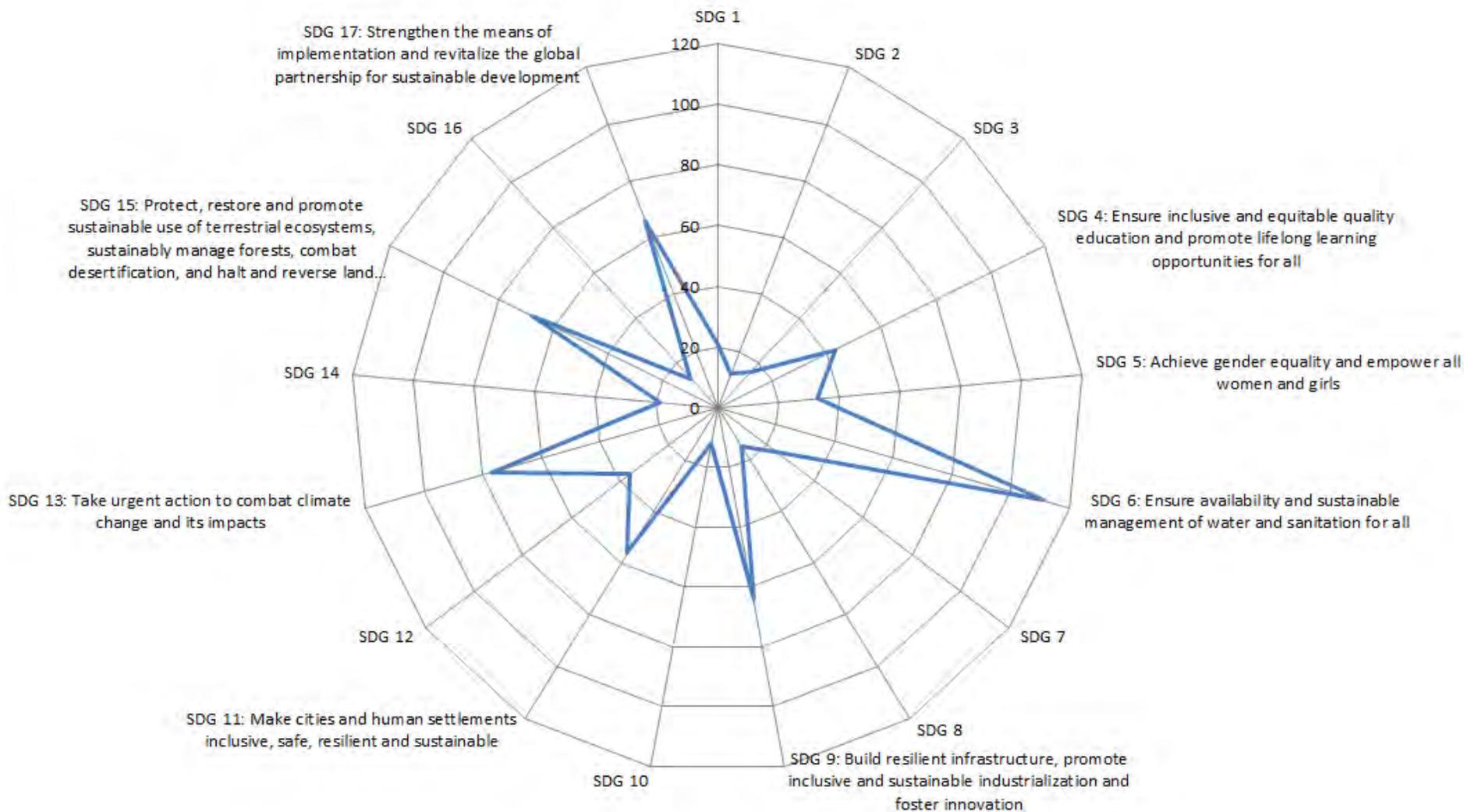
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# Science Sector's contributions to the SDGs



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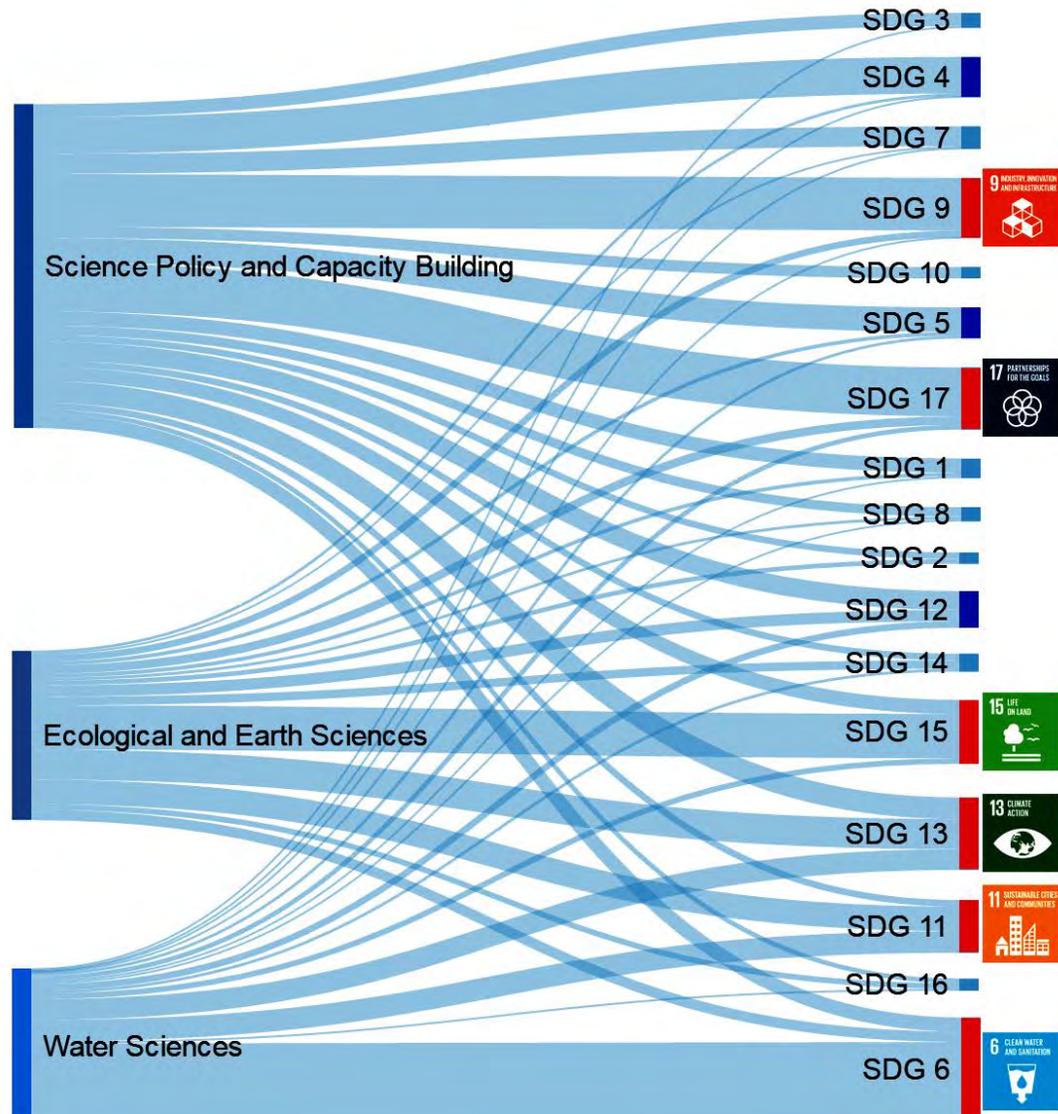




# Linking current SC programs to the SDGs



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ADG/Science for GRULAC (6.9.2016)

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# International Science Cooperation



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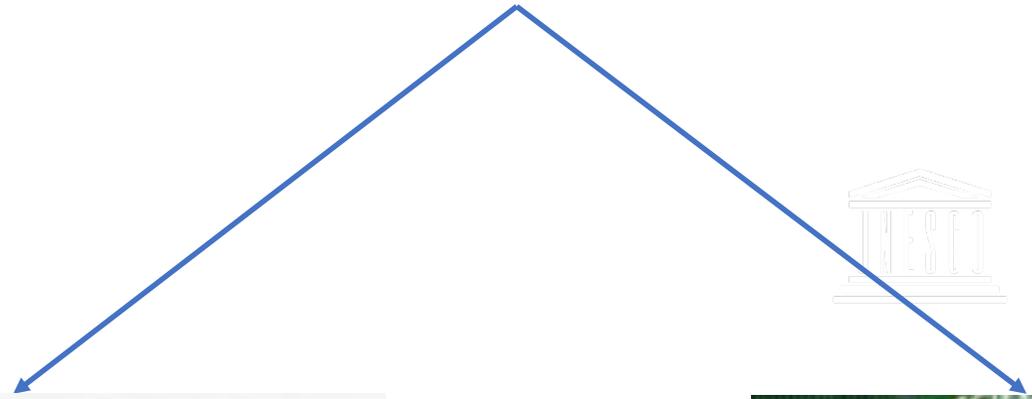
# Academies



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# *twas*

the world academy of sciences for the advancement of science in developing countries





# Mapping and Strengthening the STI sector in Nigeria

- **Impacts**

- By mapping and strengthening its STI system, Nigeria will achieve its economic and development goals.

- **Outcomes**

- The capacity of the Nigeria STI sector is strong enough to implement the STI policy and to integrate it into national development plans.
- The Nigerian 2012 STI policy is revised and aligned with Vision 20:2020, STISA 2024, Agenda 2030 and with the AU 2063 Vision.
- Innovation, entrepreneurship and commercialization of research results activities are promoted in the country and gender equality is promoted in the STI sector.

- **Outputs**

- Assessment of the implementation status of the recommendations of Phase 1 conducted (including reviewing the process of establishing the National Research and Innovation Fund (NRIF) )
- The research and innovation system of Nigeria is mapped through GO-SPIN methodology
- The performance of the STI system in Nigeria is measured through a set of indicators not present in the Go-Spin methodology.
- Improved capacity for STI governance, policy implementation and M&E

# CONCLUSION



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- **There is need to Strengthen STI**
- The choice of harnessing STI for the successful implementation of Agenda 2030 is very paramount; Various reports; including the UNESCO Science report have indicated the need to strengthen STI especially in developing countries, to this end the following action is useful
- **STI Capacity Building**, Human and infrastructure capacity strengthening and investments in human capital such as in education and training at all levels
- **Sound STI Policies**, formulated in line with best practices based on scientific evidence to inspire science-based solutions.
- **STI Action Plans and Road Map**, A commitment to developing national and international STI Action Plans and Roadmaps for achieving the SDGs
- **Mapping of STI**, to Identify knowledge gaps and initiating solutions-oriented research
- **Strengthening the Science-Policy Interface** whereby its inclusive scientific and technological community can provide input and advice on public policy issues where scientific and technical insights are essential.
- **Enhanced STEM education** at all levels
- **STI is the success factor in achieving the SDGs, each country must pay attention to strengthening their STI framework.**



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Thank You

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