Background Information

GYA Theme: Science Outreach and Education

Aims and Objectives

This GYA Incubator group was established in July 2018. It aims to harness the potential of citizen science as an approach for increasing the GYA's public engagement with the United Nations Sustainable Development Goals (SDGs).

Leveraging citizen science is necessary for achieving the SDGs as highlighted by many organisations focused on data requirements for sustainable development, interdisciplinary or transdisciplinary research projects and initiatives worldwide (such as the Open Seventeen platform, the Global Partnership for Sustainable Development Data and the Citizen Science Global Partnership, to name a few).

Although the SDGs have been discussed widely during the GYA's Annual General Meeting in 2018, work by the GYA and its members in the SDG field could be better structured. There is also a need to raise awareness of the SDGs among young scientists, and to enhance the capacity of young scientists to contribute to the achievement and the monitoring of the SDGs.

Project Leaders

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1)   The reviewers and EC saw some overlap between already existing working groups and our new incubator proposal as the engagement with the UN SDGs clearly is nothing that could be restricted to only one working group. It was therefore suggested that our group should focus on our unique selling point, which is the idea of **synthesising implementation plans for the SDGs and identifying gaps related to citizen engagement and sharing these.** The other objective on schools outreach overlaps with two already existing WGs: YSAP and Science Education for Youth. It would not be good use of scarce GYA resources to run separate workshops. Our group should therefore rather **see its role as feeding SDG content into the YSAP missions and Science Education for Youth WG activities.**

2)   It was felt that our group should make use of the **Incubator status** for the next coming months **to develop your ideas & become clearer on what you want to achieve and how.** At the same time, we strongly want to **suggest** to you **to reach out to these other GYA working groups** during the next couple of months to discuss with them **potential for collaboration, and maybe even the potential for your group to link up with an existing WG in the future.**

Definition

What is citizen science?

"Citizen science is any process where scientists and (usually unpaid) volunteers from the general public work together to answer real-world scientific questions".
Source: Bonney, R., Cooper, C. B., Dickinson, J., Kelling, S., Phillips,T., Rosenberg, K. V. and Shirk, J. (2009). Citizen science: A developing tool for expanding science knowledge and scientific literacy. *BioScience*, 59(11). 977–84. DOI:10.1525/bio.2009.59.11.9

« A citizen science project can involve one person or millions of people collaborating towards a common goal. Typically, public involvement is in data collection, analysis, or reporting.

Here are four common features of citizen science practice: (a) anyone can participate, (b) participants use the same protocol so data can be combined and be high quality, (c) data can help real scientists come to real conclusions, and (d) a wide community of scientists and volunteers work together and share data to which the public, as well as scientists, have access.»
Source: https://scistarter.com/citizenscience.html

What is a citizen scientist?

*« A **citizen scientist** is an individual who voluntarily contributes his or her time, effort, and resources toward scientific research in collaboration with professional scientists or alone. These individuals don't necessarily have a formal science background ».*

Today, citizen scientists come from all walks of life and have many advocates in the scientific community, online gamers, students who want a more hands-on experience outside the classroom, retirees, environmental justice advocates, and even prisoners are getting involved.

The ubiquity of cell phones manufactured with sensors, cameras, and GPS makes it possible to help measure and record earthquake tremors, track asteroids or monitor noise and light pollution. Access to big data, affordable lab equipment, 3D printers and other factors are redefining what it means to be a scientist.
Citizen science communities are closely linked to Open Science, Public Lab, DIY, Commons, etc
Source: https://scistarter.com/citizenscience.html

Citizen science and the Sustainable Development Goals

*« Citizen science could make contributions in three types of process linked to the SDGs: **defining national and subnational targets and metrics**, **monitoring progress** and **implementing action**. »*
Source: Sarah West and Rachel Pateman (2017). How could citizen science support the Sustainable Development Goals? Policy brief. Stockholm Environment Institute.

After taking into account previous background information, definition and the link between citizen science and the SDGs ; we conducted the following activities :

Activity N°1

August 2018: Identification of Niger National Priorities(targets and indicators) for the implementation of the SDGs and data gaps from the national voluntary review of june 2018.
This synthesis is available in the following spreadsheet https://goo.gl/yGictn

Activity N°2

September 2018: Analysis of the suggestions from the Stockholm Environment Institute staff of how citizen science approaches could help with definition, monitoring or implementation of specific SDG targets.

Activity N°3

September 2018 : Participation to the 1st edition of the ReSAKSS Data Challenge (http://www.resakss.org/challenge/). A self-graded data literacy quiz (which integrates some aspects of the UN SDGs) has been proposed and is available at https://goo.gl/forms/WKPyGy7ZGxzcbKC63
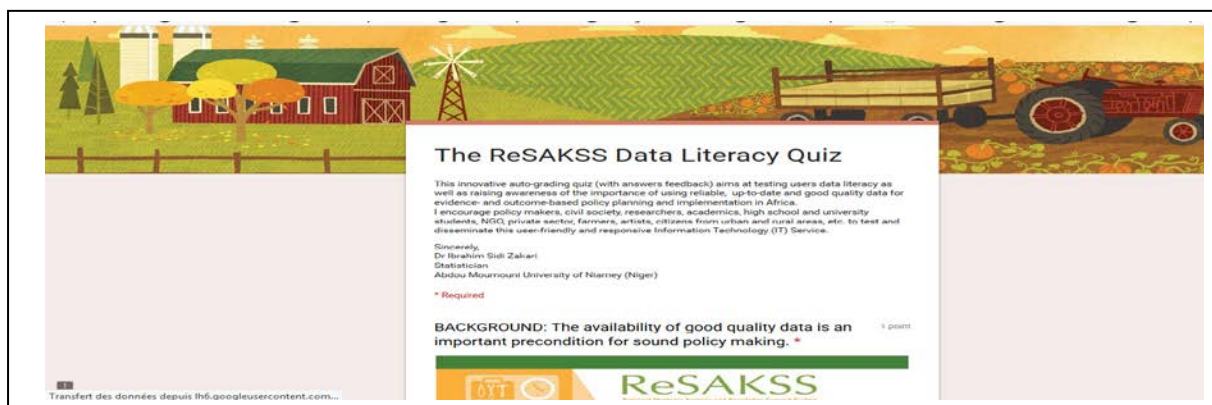
Activity N°4

November 10 th, 2018: Public Conference(at Abdou Moumouni University) as part of the **UNESCO World Science Day for Peace and Development.**
The theme for 2018 was "Science, a Human Right", in celebration of the 70th anniversary of the Universal Declaration of Human Rights and of the Recommendation on Science and Scientific Researchers.

Dr Sidi Zakari Ibrahim's public conference with UAM Students

This event aims to strengthen public engagement in science, as well as raise public awareness of the importance of citizen science initiatives and open data to bridge the data gap in the context of the UN Global Agenda 2030.
Discussions focused on:
1. The 70th Anniversary of the Universal Declaration of Human Rights of the United Nations + Ethics of Science and Technology
2. Overview of citizen science projects around the world
3. Opportunities offered by citizen science and open data initiatives

4. Overview of the United Nations Sustainable Development Goals (SDGs)
5. Plans for implementing the SDGs and identifying gaps in citizen engagement in Niger
6. Linking Citizen Science, Open Data and the UN SDGs: A Case Study of the Competition for Statistical Posters in Niger
Expected participants include researchers, civil society, policy makers, the private sector, students (universities and colleges), public administrations, NGOs, innovators, ...

The World Science Day 2018 focused on a special aim in close relation with the Universal Declaration of Human Rights and the Sustainable Development Goals: "*Everyone has a right to participate in and benefit from science, it will serve to spark a global discussion on ways to improve access to science and to the benefits of science for sustainable development*".

In her statement on the topic, the Director General of UNESCO said:"*Together, we should strive for greater access to science education -particularly for girls –as well as support Open Science and innovative ways for advancing research*".

and **the Assistant Director General affirmed that** "*Everyone has a right to participate in and benefit from science, and science centres and museums play an important role in making science accessible to all. They share UNESCO's objectives of linking science more closely with society, sharing scientific knowledge and fostering the engagement of young people in science, technology and innovation*".
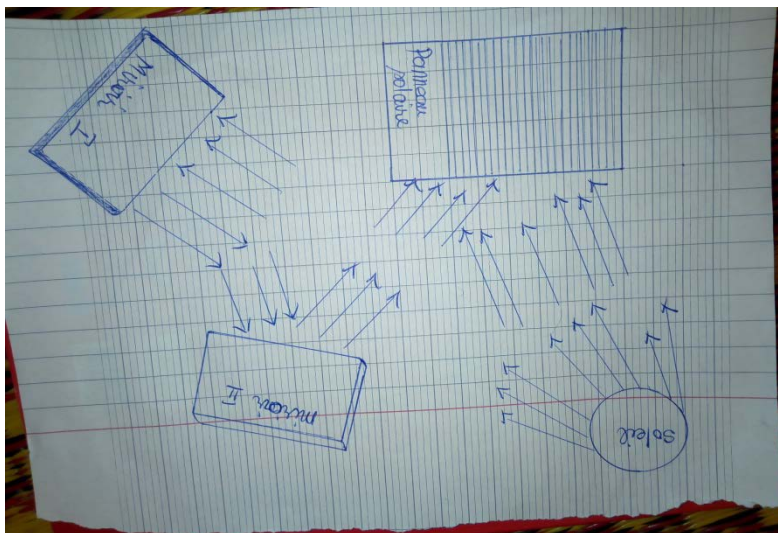
Activity N°5

November 11 th-15th 2018: **Photos competition on science and sustainable development.**

This competition aims to introduce Abdou Moumouni University students to the concept of citizen science as a mean of collecting, disseminating data and information in a collaborative manner. Photos need to be linked with one or several of the 17 SDGs.
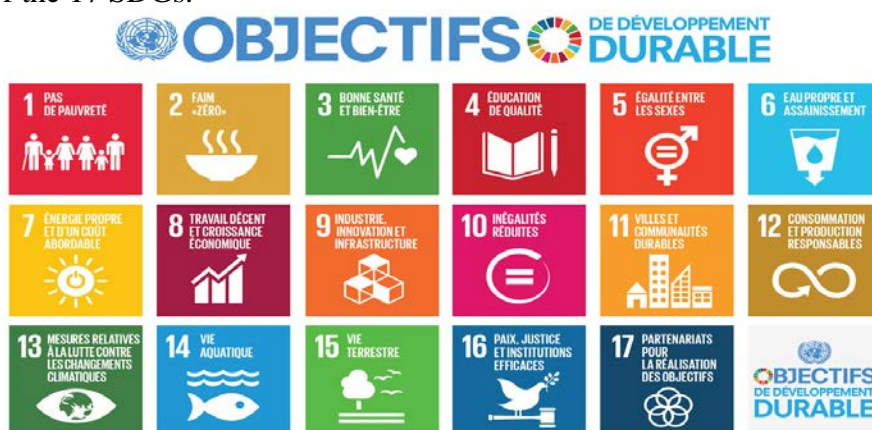
Photo and comment from students*: « By using the mirror effect at the solar panel we bring twice the solar radiation at the same place, so twice the solar energy"*

Photos and comment from students: *"Small basilica garden in two houses. The basilica is a plant with many therapeutic virtues but not known to the general public so its juice can be consumed without moderation by diabetics.*
It is a plant that does not need pesticides or chemical fertilizers to grow, so this plant whose products are 100% organic. It is also a plant whose presence has a lot of benefits on the environment.
In summary the culture of this meets the objectives: 13; 3 of sustainable development''.

Activity N°6

15 November 2018: **Training Workshop on Citizen Science, Open Data and UN SDGs** for 60 Bachelor Students from the Faculty of Sciences and Technics (Abdou Moumouni University). This activity has been conducted as part of the Scientific and Cultural Week's activities.

Activity N°7

Promotion of citizen science during the **Niger Science Week (as part of the Next Einstein Forum Africa Science Week)**
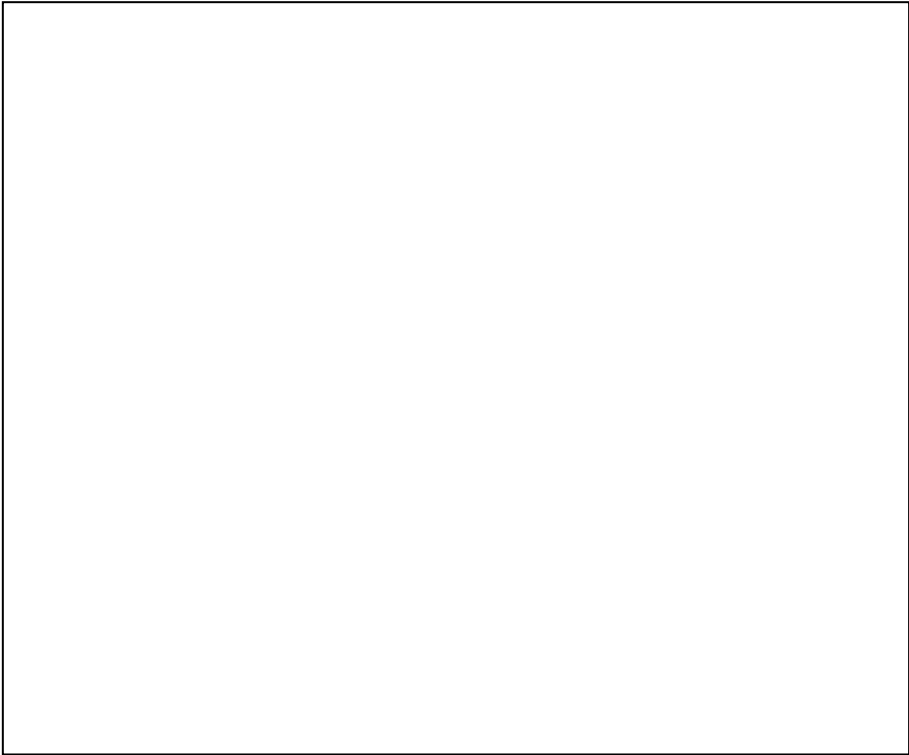

Advertising the Niger Science Week in Niamey (capital city) avenues

Local NEF Ambassadors and Organization Committee members

Citizens working on mathematical projects and challenges in the dedicated science village.

Audience with the President of Niger HE Mahamadou Issoufou

**Words of greetings to the President of Niger HE Mahamadou Issoufou
from the local African Science Week organization commitee.**

Promotional video (in french and english languages) about this event is available at https://youtu.be/stAWbz_FCG8 .
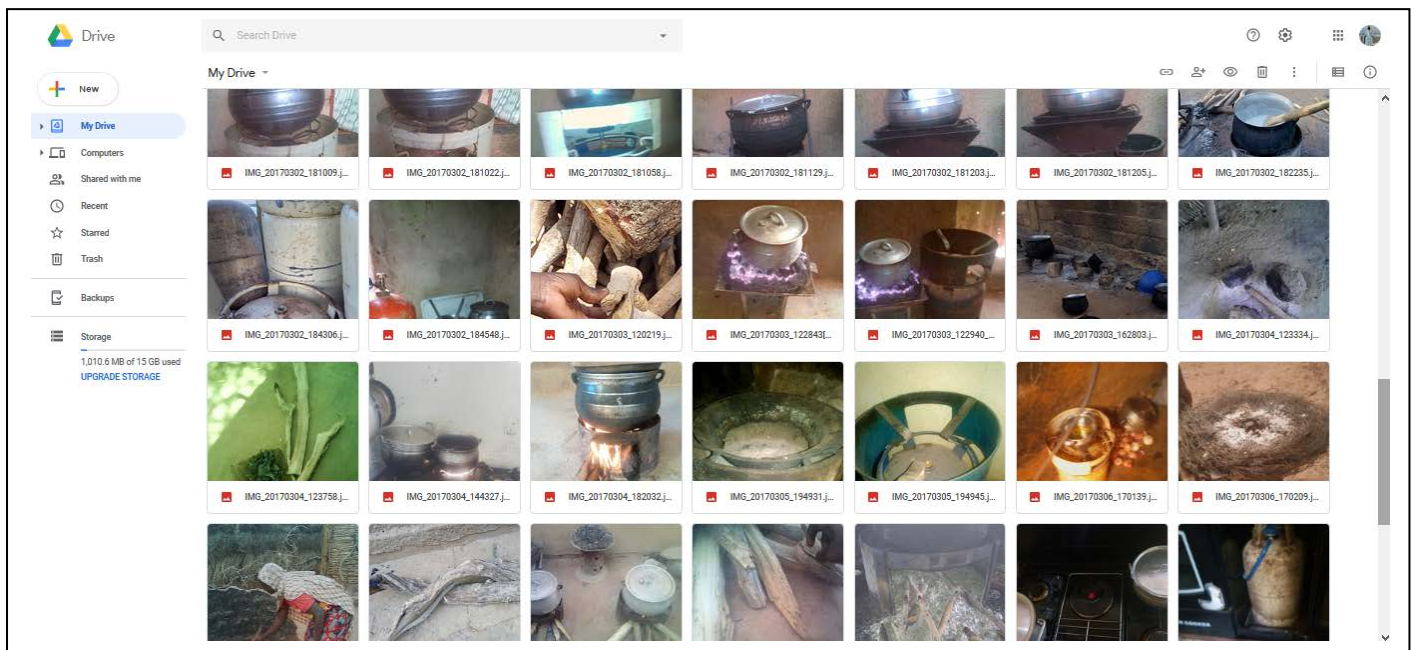
Activity N°8

19 January 2019 : Participation to the Islamic Development Bank (IsDB) Transformers Roadshow Competition in Niger. This international event dedicated to Science, Technology and Innovation promotes Sustainable Development Goals (SDGs) ; particularly SDGs 1, 2, 3, 4, 5 and 7.

Elevator Pitch session

Activity N°9

03 to 24 February 2019 : Crowdsourced household energy use photos database (as part of bachelor students ICT course and hand-ons homework at Faculty of Science and Technics, Abdou Moumouni University). This activity registered 610 photos from 305 contributors and aims at monitoring access to affordable, clean and reliable energy services (SDG 7) in Niamey (Niger capital city).

Activity N°10

20 to 24 February 2019 : Participation to the 1st edition of the International Millet Festival (Festimil) and Salon de l'Agriculture, de l'Hydraulique et de l'Elevage (SAHEL 2019) in Niger.

28 February to 27 March 2019: Review of the 2019 UN Global Sustainable Development Report (GSDR). The GSDR contributes to the follow-up and review of the Sustainable Development Goals (SDGs) and will provide input to the High Level Political Forum. The GSDR was prepared for the first time by an Independent Group of Scientists appointed by the UN Secretary-General to help strengthen the science-policy interface.
https://sustainabledevelopment.un.org/globalsdreport/2019 ....

Activity N°11

28 February to 27 March 2019 : Review of the Global Sustainable Development Report (GSDR) 2019
https://sustainabledevelopment.un.org/globalsdreport/2019
The GSDR is one important component of the follow-up and review process for the 2030 Agenda for Sustainable Development. It will inform the high-level political forum, and shall strengthen the science-policy interface and provide a strong evidence-based instrument to support policymakers in promoting poverty eradication and sustainable development.

Activity N°12

February-July 2019: Participation to the organization committee of « Innovation for Developement », an international event as part of side events of the upcoming African Union Head of State and Government Summit which will take place in Niamey(Niger). Activities include smart villages prototypes, pitch to business as well as scientific events and conferences about SDGs implementation and Citizen Science.