

Appropriate Technology For the People

International Conference on Comprehensive Framework on
Appropriate Technology Towards SDGs

Presented by:

ESTRELLA F. CATARATA
Executive Director

Presentation Outline

- A. The Philippine Context
- B. SIBAT (Wellspring of Science and Technology)
- C. CBRES (Community-Based Renewable Energy Systems)
- D. CRESA (Climate Resilient Sustainable Agriculture)
- E. Appropriate Technology in the Philippine Context
- F. Guiding Principles
- G. Addressing the SDGs
- H. Challenges



- an archipelago with an area of approximately 300,000 km²
- > land: **30 million hectares**
- coastline is 26,289 km
- around 7,100 islands (before); **now 7,641** (NAMRIA)
- A megadiverse country with more than **52,177** described species of which **more than ½ are endemic**
- **Climate:** northeast monsoon (November to April); southwest monsoon (May to October)
- > **107 million People (PSA)**



Natural resources: timber, petroleum, nickel, cobalt, silver, gold, salt, copper etc.

Land-use: AGRICULTURAL LAND is 41% (Arable land – 18.2% (2011 est))

~1950's to ~2005

Agriculture contributes **20% of GDP**

Half of the labor force is in agriculture

Performed well relative to other Asian countries in 1970's

2017 – 10% of GDP

It performed poorly since the 1980's

Share of agriculture to total exports:

1960- 65%;

1994 – 12%

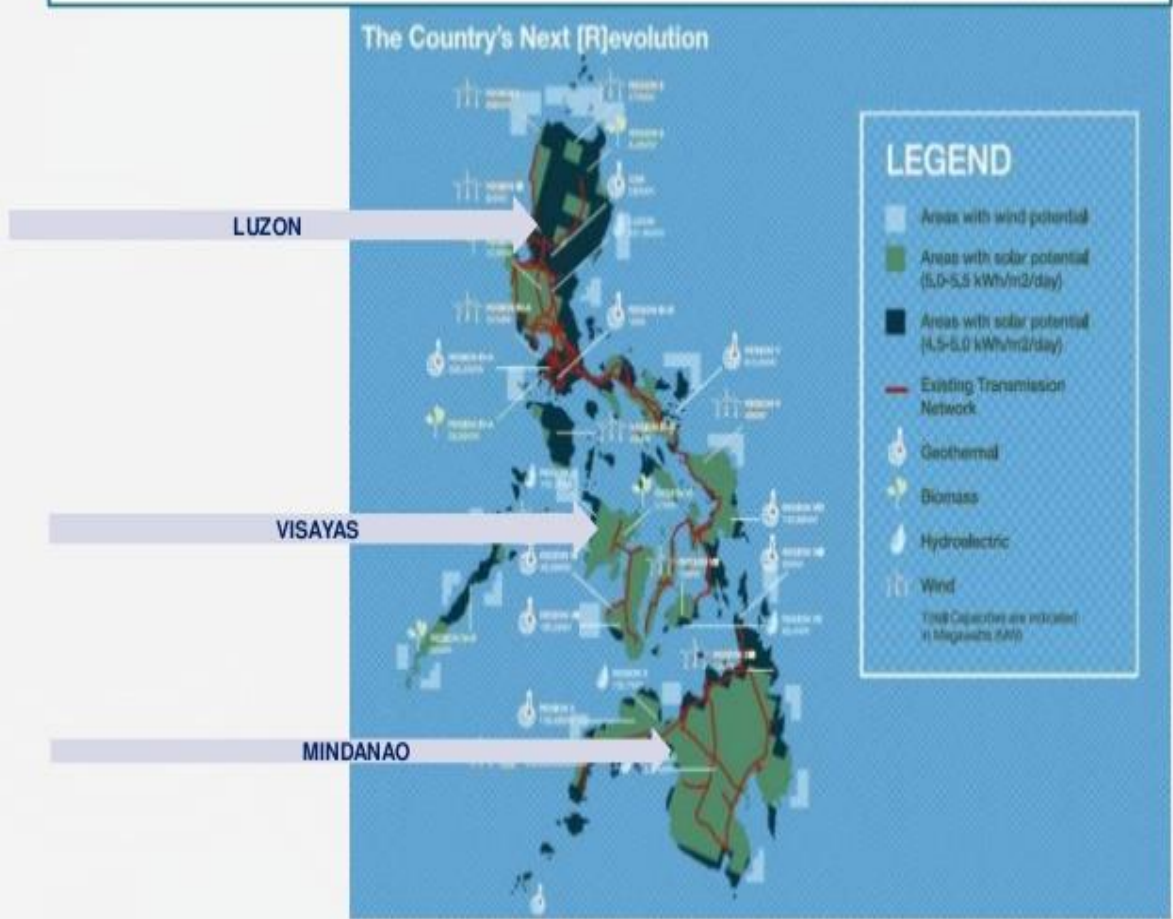


RENEWABLE ENERGY SOURCES IN THE PHILIPPINES

Biomass (bagasse)	Potential: 4,449.54
Geothermal	1,200 MW
Solar	Average potential: 5kWh/m ² /day
Hydro	10,500 MW
Ocean	170,000 MW
Wind	76,600 MW

Source: Jose Layug, National Renewable Energy Board

The Renewable Energy Map Potential in the Philippines



Poverty Situation and Climate Change Vulnerabilities

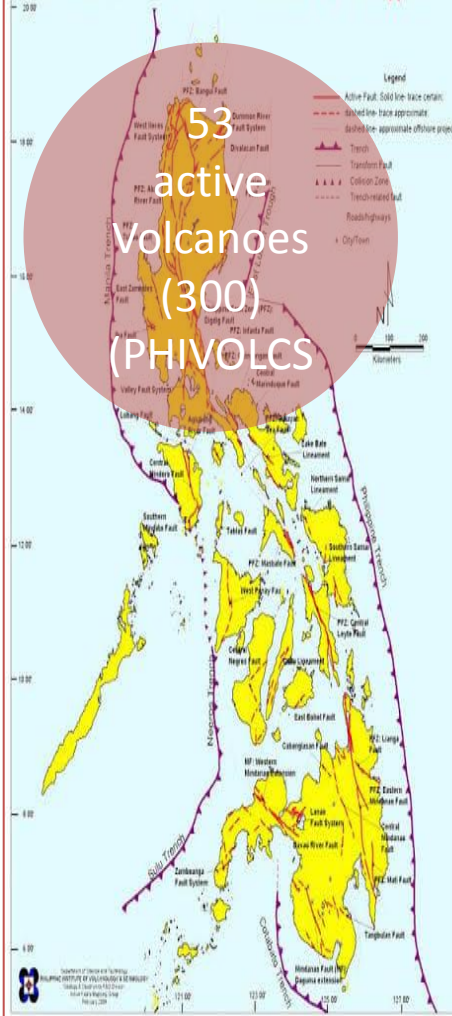
23% of Filipinos are poor based on a P 10K monthly income for a family of 5 – PSA

Commercialized basic services and utilities – water, energy

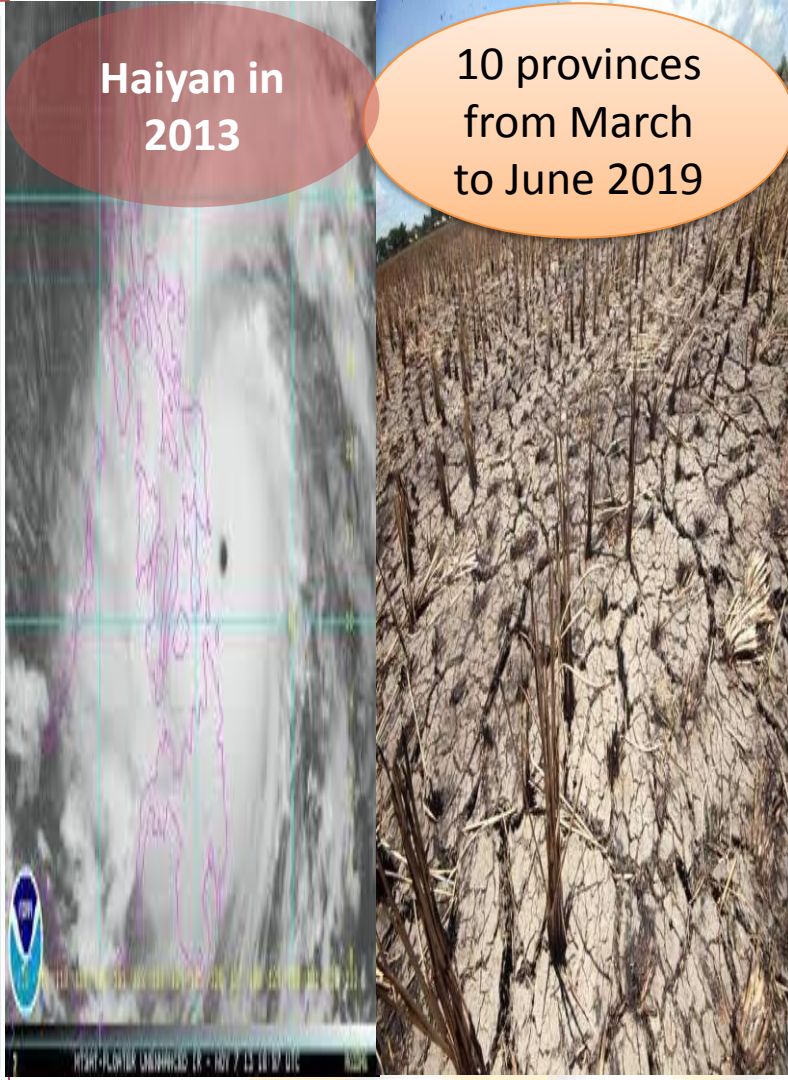
7 out of 10 Filipinos think they are poor (Ibon Survey)

Government's NEGLECT AND CORRUPTION

Distribution of Active Faults and Trenches in the Philippines

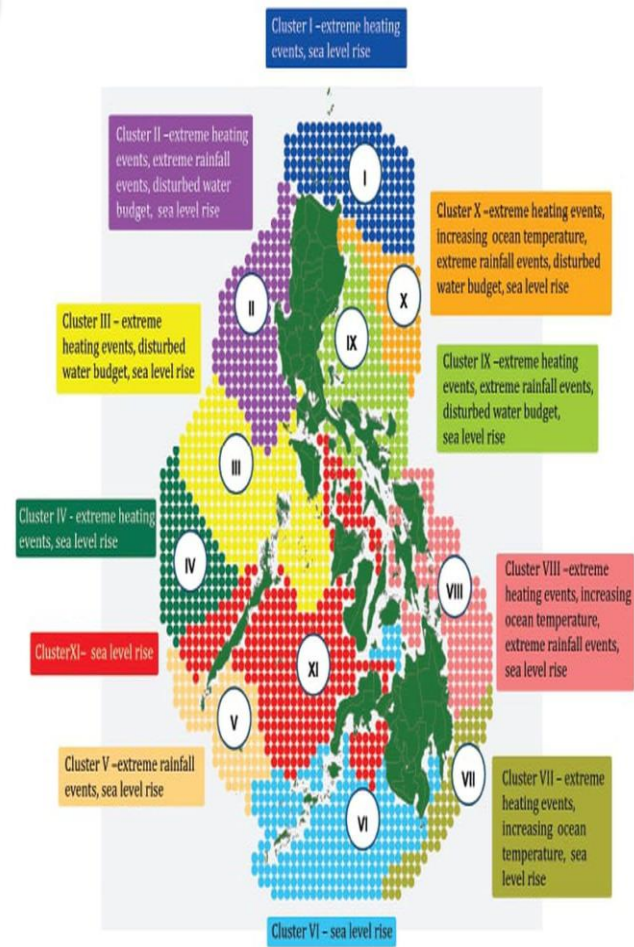


Haiyan in 2013



10 provinces from March to June 2019

PHILIPPINE EXPOSURE MAP ON CLIMATE CHANGE



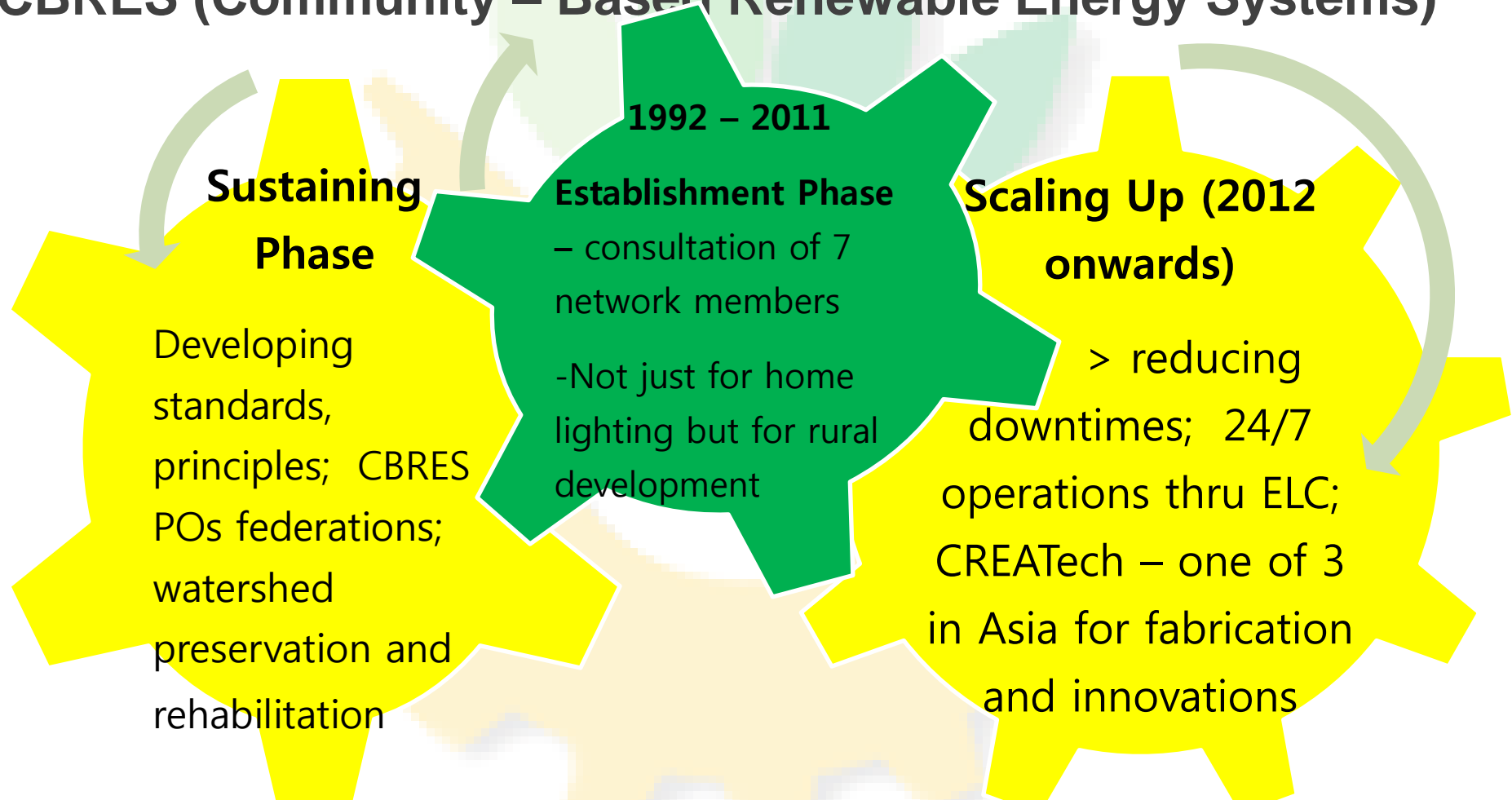
SIBAT's VISION

SIBAT envisions a just and sovereign society that upholds genuine development based on people-centered science and technology .

Mission

Commits to develop, promote and popularize the application of appropriate technologies towards attaining village-level sustainable development in poor communities

CBRES (Community – Based Renewable Energy Systems)







CBRES (Community-Based Renewable Energy Systems)

- CBRES are small, decentralized energy supply systems established through multi-stakeholder efforts with the major participation of organized communities. The local organizations own, manage and sustain the systems, which do not only provide lighting to households, but also provide energy for food and crop processing and livelihood needs for rural households.
- The CBRES communities are organized through their people's organizations (POs), who collectively harness their local resources, cooperate to implement the technology, and actively operating and managing the system to support their primary needs.

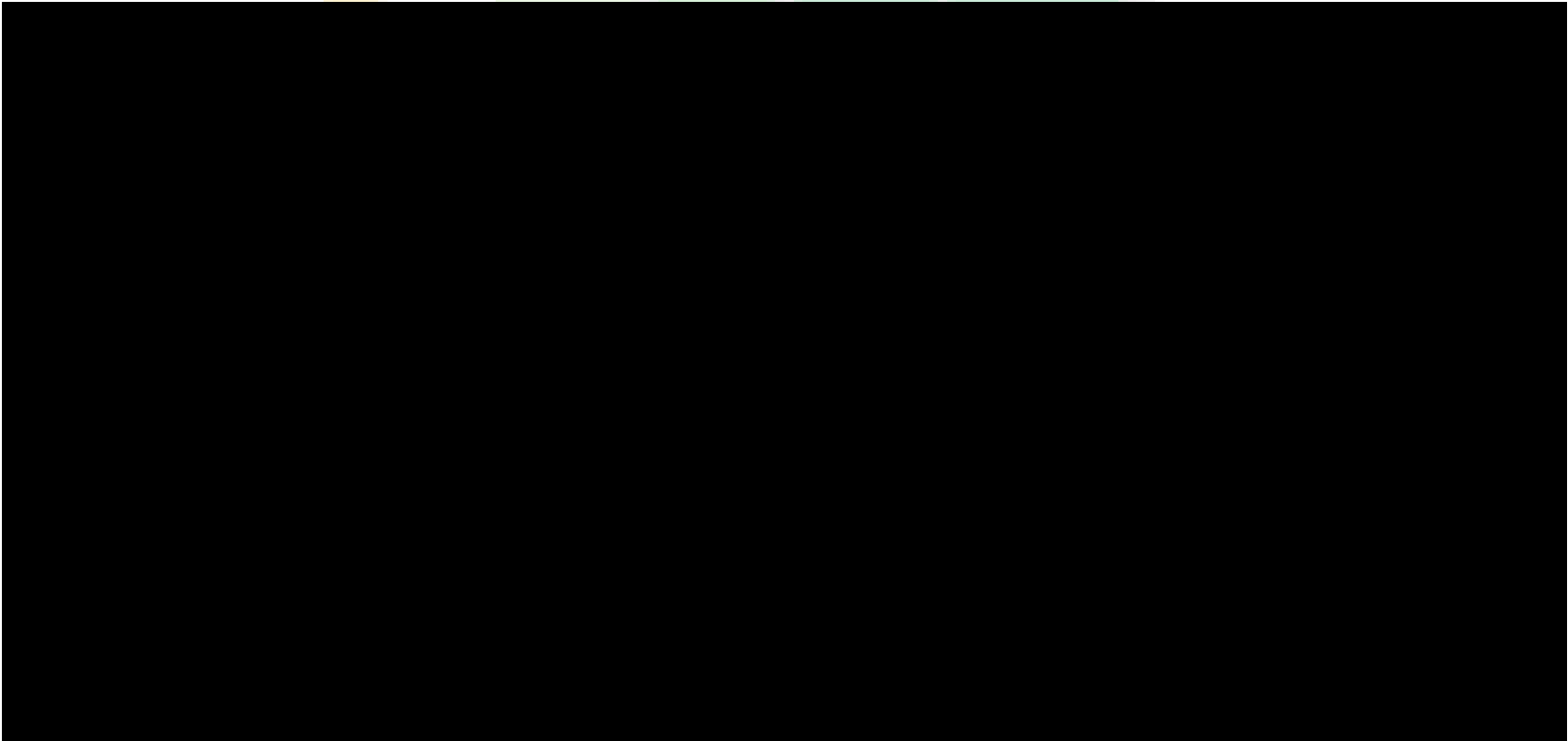


CBRES – CREATEch

- SIBAT acts as local facilitator during and after the project's establishment. The local government unit (LGU), as the local authority mobilizes additional support to the project through local administration.
- SIBAT's expertise on CBRES is widerange – from technical designing, advisory and supervision to organizational and management advisory in post-installation phases.
- The establishment of the CREATEch as CBRES resource center for advisory, information, demonstration and training will consolidate these capabilities and allow these to be better accessed by potential proponents of CBRES projects.



Community-Based Renewable Energy Systems (30 plus)



Climate Resilient Sustainable Agriculture – DIFS



CRESA - Diversified Integrated Farming System



What is Appropriate Technology?



- **SIBAT's appropriate technology (AT) core programs** are sustainable agriculture, renewable energy, small water systems development, pre and postharvest technologies.
- **Appropriate Technology** as adhered to by SIBAT is premised on highest regard for its genuine responsiveness to the needs of the community.
- It aims to generate real benefits, promote social justice and equitability among disadvantaged sectors and population, with particular attention to rural women.
- It is based on people's participation with the objective of developing local capacities and overall technological self-reliance.
- AT applications strictly observe the basic regard for environmental conservation and protection.

Appropriate Technology – Guiding Principles



1. Ecologically Sound and Sustainable

- does not degrade or pollute the environment
- Preserve technology through self-reliance and efficient use of resources.
- Each organism has a role to play in the entire ecosystem – humans, plants, animals
- Tap renewable energy sources like biogas, draft animals and water, solar, wind, seas, geothermal
- The agro ecosystem should produce thriving nutritious plants and energy which nourish humans in all respects; physically, mentally and spiritually
- Preserving and propagating all of nature not just for the present but for the future generations

Appropriate Technology – Guiding Principles

2. Community-based, community-owned and collectively-managed

- > based on the capacities of the community to collectively manage
- > responsive to the concrete needs of the majority in the community
- > It is the community who will set and unite on the policies and enforce these and ensure its sustainability - locally autonomous
- Accessible and affordable
- Promotes unity and oneness among community members

APPROPRIATE TECHNOLOGY - GUIDING PRINCIPLES

3. Adherent to Social Justice

- The system must assure that resources and power are distributed equally so that the basic needs of all are met and their rights are well-protected and respected.
 - **Equitable Control of Resources** – means of production should be handed to the majority of the populace to escape poverty and grow food they need to feed themselves.
 - **Full participation** – ability of the people to participate in the vital decisions that determine their lives. Community members express full participation.

Appropriate Technology – Guiding Principles

4. Humane

- Humans is the totality of physical, social, mental, cultural and spiritual aspect of life
- Thru social interaction it strengthens cooperation, trust, honesty and hope - values needed to counteract selfish interest
- Be humane to all living things
- The ultimate goal of sustainable agriculture and appropriate technology is the cultivation and perfection of human beings.

Appropriate Technology – Guiding Principles

5. Scientific and innovative

- Based on research and well supported by evidence
- Continuing innovations grounded on research and development
- Innovations adhere to Open source principles - peer production and open collaboration

6. Economically Viable

- Basic food needs and services are answered at the minimum requirement
- Excess could be used for other family needs like health, education, shelter, etc.
- Able to take root and grow over both the short and long terms with positive net returns.

Appropriate Technology – Guiding Principles

7. Gender and Culturally-sensitive

- Respectful of indigenous people's culture
- Adherent to the customary laws of indigenous peoples communities
- Free, prior and informed consent (FPIC)
- Gender sensitive
- Empowering and mobilizing women participation in the overall process

Addressing the SDG's



**ENSURE ACCESS TO
AFFORDABLE, RELIABLE,
SUSTAINABLE AND MODERN
ENERGY FOR ALL** 

GLOBALLY



12.6%

**STILL LACK ACCESS TO
MODERN ELECTRICITY**
ENERGY ACCOUNTS
FOR ROUGHLY

2/3

**OF GLOBAL GREENHOUSE
GAS EMISSIONS**

**7 AFFORDABLE AND
CLEAN ENERGY**



IN INDIA

NEARLY
84.5%
PEOPLE HAVE ACCESS
TO ELECTRICITY



100%
VILLAGES
ELECTRIFIED



**POWER CABLES FROM THE GRID
HAVE REACHED A TRANSFORMER
IN EACH VILLAGE**

**BUT 31 MILLION HOUSES STILL
LACK ACCESS TO ELECTRICITY**

**AMBITIOUS RENEWABLE
TARGETS BY 2022**

**175
GW**

**RENEWABLE
ENERGY
CAPACITY
COMPRISING**



**100
GW**



**60
GW**



**10
GW**



**5
GW**

GOAL 6

ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT
OF WATER AND SANITATION FOR ALL

SUSTAINABLE DEVELOPMENT GOALS

More at sustainabledevelopment.un.org/sdgs

Goal 13 Combat Climate Change

GOAL 1

END POVERTY IN ALL ITS FORMS EVERYWHERE

GOAL 2

END HUNGER, ACHIEVE FOOD SECURITY AND
IMPROVED NUTRITION AND PROMOTE
SUSTAINABLE AGRICULTURE

SUSTAINABLE DEVELOPMENT GOALS

More at sustainabledevelopment.un.org/sdgsproposal

GOAL 15

A close-up photograph of a green tree frog with a large, bright red eye and orange markings on its body. The frog is perched on a green leaf, and the background is a soft-focus green.

PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF
TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE
FORESTS, COMBAT DESERTIFICATION, AND HALT AND
REVERSE LAND DEGRADATION AND HALT
BIODIVERSITY LOSS

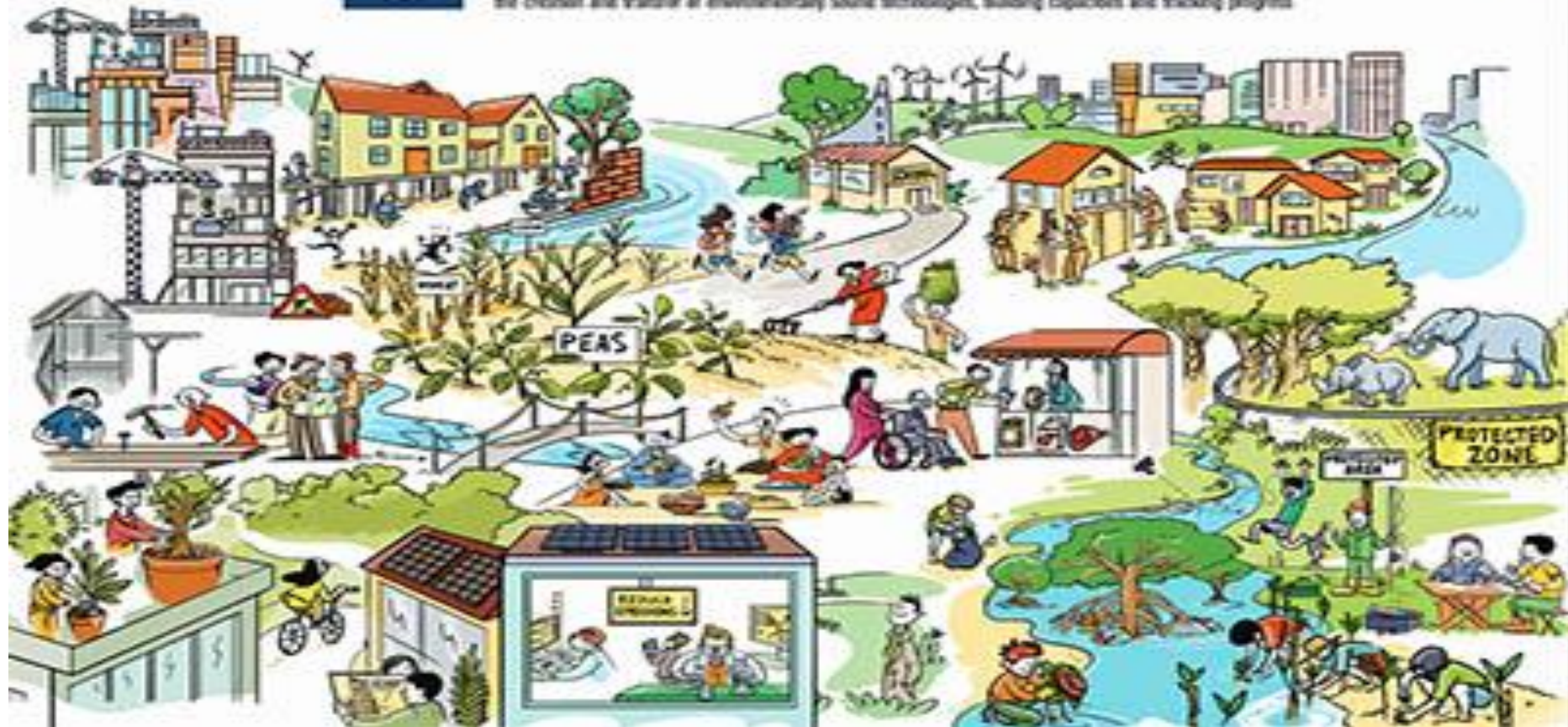
SUSTAINABLE DEVELOPMENT GOALS

More at sustainabledevelopment.un.org/sdgsproposal



Partnership for the goals

Build strong partnerships for sustainable development by mobilizing resources, sharing knowledge, promoting the creation and transfer of environmentally sound technologies, building capacities and tracking progress



Challenges.....



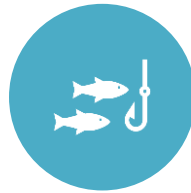
CBRES PO
STRENGTHENING
AND FEDERATION



TARRIFICATION AND
TARIFF COLLECTION
FOR MAINTENANCE



TYPHOON AND
LIGHTNING STRIKES



WATERSHED
DEGRADATION AND
THREATS



POLICY ADVOCACY



RENEWABLE ENERGY
LAW OF 2008 VIS-À-
VIS BIG BUSINESS
AGENDA

Challenges



ORGANIC AGRICULTURE
ACT VERSUS LACK OF
SERIOUS ENFORCEMENT
AND IMPLEMENTATION



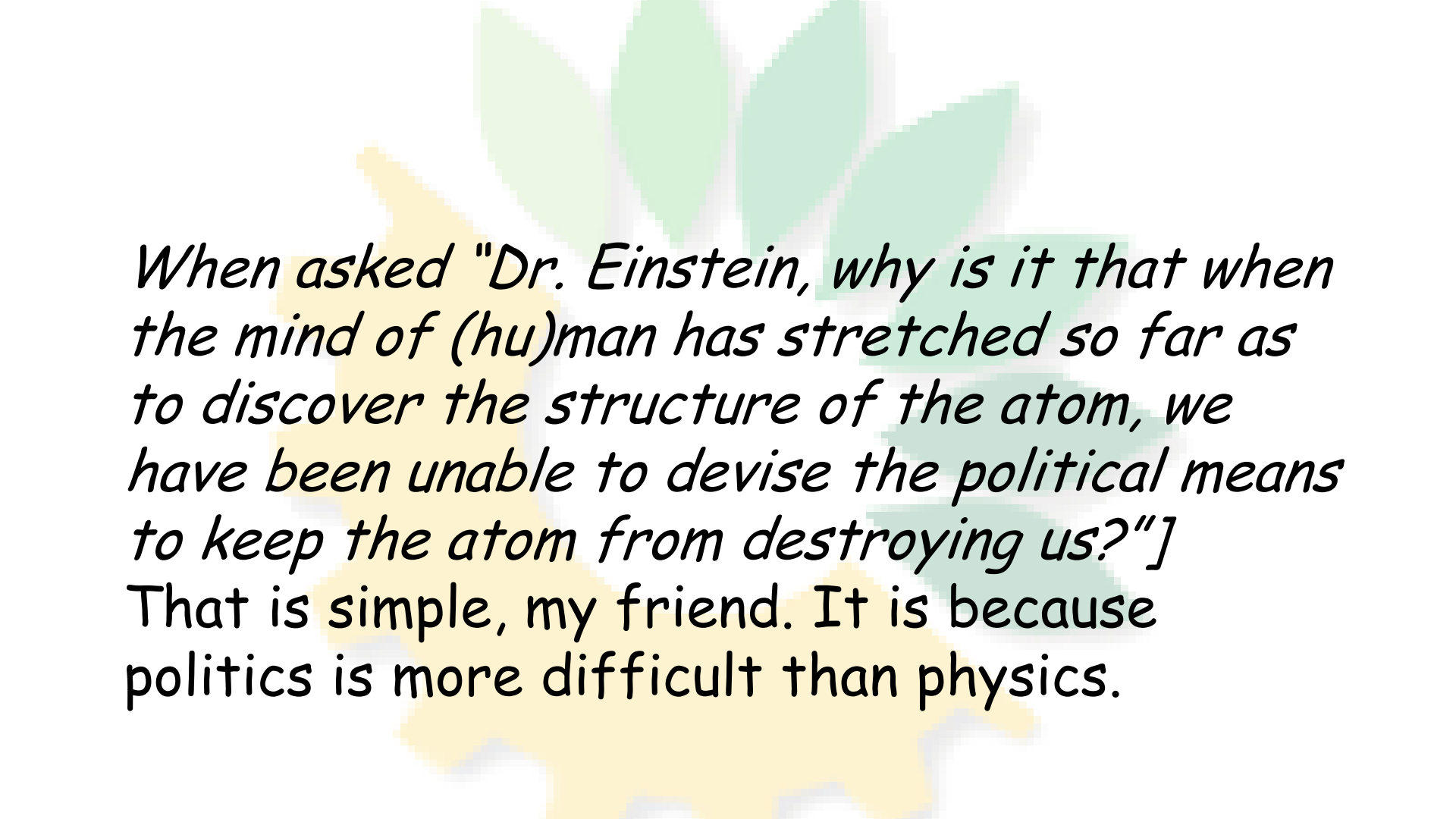
LACK OF NATIONAL
GOVERNMENT SUPPORT
IN CBRES AND CRESA



LACK OF FUNDING
SUPPORT VIS-À-VIS THE
NEEDS OF THE
COMMUNITIES



DEARTH OF
PROFESSIONALS WHO
CAN STAY FOR LONG
AND COMMIT
THEMSELVES IN
DEVELOPMENT WORK



When asked "Dr. Einstein, why is it that when the mind of (hu)man has stretched so far as to discover the structure of the atom, we have been unable to devise the political means to keep the atom from destroying us?"]
That is simple, my friend. It is because politics is more difficult than physics.

Thank you.



1. ありがとうございます。
Arigatōgozaimasu. = Thank you.

2. 感謝します。かんしゃします。
Kanshashimasu.
= I appreciate.

3. 助かります。たすかります。
Tasukarimasu.
= That helps. That will be great.



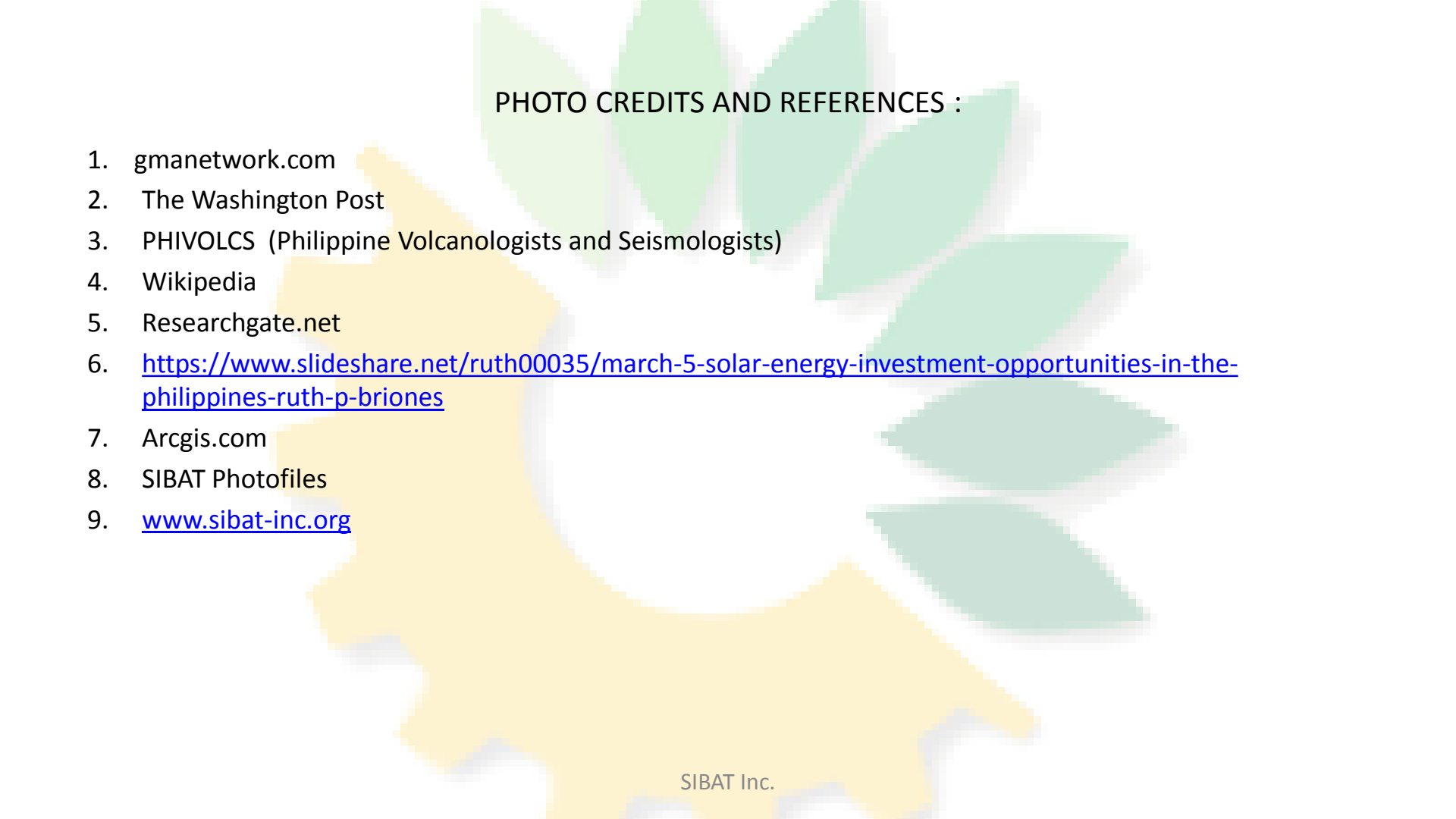


PHOTO CREDITS AND REFERENCES :

1. gmanetwork.com
2. The Washington Post
3. PHIVOLCS (Philippine Volcanologists and Seismologists)
4. Wikipedia
5. Researchgate.net
6. <https://www.slideshare.net/ruth00035/march-5-solar-energy-investment-opportunities-in-the-philippines-ruth-p-briones>
7. Arcgis.com
8. SIBAT Photofiles
9. www.sibat-inc.org