



## **Bio-Plastic Innovation and Human Capital Development**

Last week, I delivered a key note speech at an international conference and bio-plastic innovation research and development exhibition called “InnoBioplast2019”.

Dr. Wantanee Chongkum, a co-founder and advisor, Thai Bioplastics Industry Association (TBIA), and Ms. Lampaopun Leerapun, Manager, Thai Bioplastics Industry Association (TBIA) and an organizing committee member invited me. Both of them are scientists. Thai Bioplastics Industry Association Conference is organized every two years. Thailand hosts every conference. Mr. Kittiphong Limsuwannarot who comes from PTT is the President of Thai Bioplastics Industry Association (TBIA).

Most participants were scientists. Therefore, they would like me to share human capital views. This was every challenging. I think that I could help most foreign participants to see various views and realize that people were a success factor.

This was very challenging. I started by searching for 3 interesting quotations. I must thank my team: Mrs. Waraporn Choopakdee, Ms. Jitlada Leeyakas and Ms. Erawan Boonplod.

- "We won't have a Society if we destroy the environment."

**Margaret Mead**

- “The environment and the economy are really both two sides of the same coin.

If we cannot sustain the environment, we cannot sustain ourselves.”

- “You cannot protect environment unless you empower people”

**Prof. Wangari Maathai**

**a Kenyan environmental activist**

**and a Peace Nobel Prize Winner**

In Industry 4.0, biotechnology for bio-plastic mainly focuses on conducting research for innovation.

Nowadays, the world is full of plastic which cannot be degradable within 100 or thousand years.

In our ASEAN Summit, we agreed to get rid of plastic from the ocean. It can be toxic in the fish we eat.

I think that a challenge which needs help from scientists and several experts is the research on human capital. Without human capital, people cannot create success from bio-plastic innovation.

I started with showing them the macro view. I cited UN's 17 Sustainable Goals. I showed them that, to create success in bio-plastic area, they would need to focus on those Sustainable Goals. They would have to apply King Rama IX's Sufficiency Economy Philosophy as follows.

- Moderation
- Self-immunity
- Reasonableness

Knowledge and morality are used as the main conditions. Moreover, I presented my 6 rules I mentioned several places but were still valuable for sustainable development. Instead of environmental problem or global warming, sustainability must solve gap and help grass-root people to be self-reliant.

Then, they will not destroy the forest.

- 1) balance the short-term and the long-term benefits.
- 2) be environmentally friendly.
- 3) balance the morality, ethics and development.
- 4) be based on scientific thinking, analytical thinking, life-long learning and learning society.
- 5) benefit the majority instead of small groups of people
- 6) be self-reliant

The participating scientists' views should be broadened. They should not only look at science or technology. Gen. Prayut's government pays a lot of attention to this and focuses on STEM.

- S = Science
- T = Technology
- E = Engineering
- M = Mathematics

This is not enough. Teamwork must be developed between science and marketing. All parties must be inspired to have dignity. This is still a problem in Thai society. People think that those who study in STEM fields can have more chances to success. I think that STEM must be synergized with management. Public, private, academic sector and community must be implanted with human capital management concept. I would like them to work with continuity. They should not do it once and stop forever.

All of my works focus on these concepts.

-Continuity Theory

-Step-by-step small wins

Finally, the bio-plastic success is 4.0. Generally, there are concepts on science and business which do not leave anyone behind.

Research business concept follows Stanford University's concept as follows.

**Imagination→Creativity→Entrepreneurship→Customers→Performance**

HR Architecture age structure

1. Implant children to have sustainable environment mindset.

2. Create core value to leave the resource to the next generation.

3. Do not look at people in only these age groups: birth, childhood, school age, working age, retirement age and death.

All age groups must study and work. An interesting point is that people of 60 years of age or older must work and mentor the younger generations.

Gen X and Gen Y must search for new knowledge. Knowledge will become out-of-date and they have to relearn new knowledge. Besides learning to earn a living, they should sustain the world.

**Instead of being greedy and crazy for wealth, Gen Z or Millennials should care for sustainability. They must aware of sustainability importance and grow up as valuable adults.**





Dr. Wantanee Chongkum, a co-founder and advisor, Thai Bioplastics Industry Association (TBIA), and Ms. Lampaopun Leerapun, Manager, Thai Bioplastics Industry Association (TBIA) and an organizing committee member invited Prof. Dr. Chira Hongladarom to deliver the keynote speech on Leadership and Human Resources Development towards Sustainable Green and Circular Economy at the international conference and bio-plastic innovation research and development exhibition called “InnoBioplast2019” organized by Thai Bioplastics Industry Association (TBIA) on July 4, 2019 at Ambassador Hotel Bangkok.

*Prof .Dr. Chira Hongladarom*