Republic of the Philippines
Cebu Normal University
COLLEGE OF TEACHER EDUCATION
Osmeña Blvd., Cebu City

Global Worming and Looking Beyond: The Cebu Normal University (CNU) Experience

From Chiang Rai, Thailand to the In-Country Workshop Cebu, Philippines
(Kotter's Eight Step Change Model)

Introduction

Our visit to Chiang Rai, Thailand on June 5-9, 2017 was truly a strong admonition for universities to help improve access to quality education on sustainable development at all levels and in all social contexts in order to transform society by reorienting education by develop knowledge, skills, values and behaviours needed for sustainable development (UNESCO). The agency has been truly supportive of capability building, symposia and other educational activities in order to attain the SDG goals.

Along this line, the Chiang Rai experience have led to ripple effects in the CNU educational system. The initial step was the Local Orientation of the Integrated Laboratory School Mentors on how ESD can be mainstreamed in their curriculum. Followed by meetings with the College Dean and Faculty on ESD updates and foreseen ESD Trainings.

It all started on the issue-based Approach presentation of Solid waste Management which we coined as "Global Worming". The history on how it started and how we have looked beyond

1. The Urgency

The generated domestic waste is estimated to be half kilo per individual, if solid waste will be improperly managed, it might have detrimental effects on the environment, health and ecosystem. The safe disposal of waste using eco-friendly procedures is the need of the times. The growing school population, the varying public attitudes and the inconsistent garbage collection made it difficult to develop and implement effective SWM systems.

2. The Powerful Coalition

In my graduate school (SY 2013-2014) Ecology class, there were fifteen students which were either public or private school teachers currently teaching. We came to discuss Solid waste management – its causes and consequences. In response to the call of environmental distress we came to an agreement of networking with each other on this solid waste management issue. The teachers in my class are very robust arms for solid waste management in their respective schools.

3. The Vision for Change

*"**Global warming degenerates the environment, global worming replenishes the earth**."*

In RA 9003, "Ecological Solid Waste Management Act of 2000" the Philippine government mandates a systematic, comprehensive and ecological solid waste management program which is environmentally sound and will ensure the protection of the public health and environment.

Guided by the state mandate and having in mind the Vision of the university on ***Building a strong nation***; incorporating its mission: ***Transformative instruction, High impact researches and strong partnerships***, indeed the school plays a crucial role in solving this societal issue.

Vermicomposting came into the discussion wherein, wastes can be turned into gold'; reduce the accumulation of environmental and source of livelihood with the decrease input of garbage to the dumpsites, thus, it a very viable solution. Henceforth, we called our project "**Global Worming**".

4. Communicating the Vision

In order to capacitate each teacher, a series of Lecture, Demo-farm Visit and Actual workshop on vermicomposting was conducted. Then, we started formulating our strategy by having preliminary discussions with school principals, drafting Memoranda of Agreement per School, Presentation and further discussion with the school administrators and setting up of the Vermicomposting site per school.

5. Removing the Obstacles

The teachers are overloaded with their teaching schedule per day; however, they still have the solid waste management problem at hand. Thus, through Science teachers who were advisers of Youth for Environment in Schools Organization (YES-O) (affirmed by DEPED Order 72. series of 2003) and the student body hence the implementation was made easier.

One of the Vermicomposting Site established through YES-O (Left)

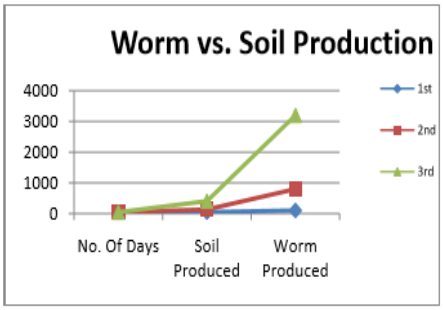
Prof Generalao of CNU giving lecture on Vermicomposting among the students of Barangay Nangka, Balamban, Cebu (Right)

6. The Short-Term Wins

The use of indigenous materials for the laying of the vermicomposting project was the rule of thumb; the existing recyclable materials must be utilized. True enough; the only thing that the school purchased is the kilo of African night crawler (*Eudrilus euginae*) which is Php 500 per kilo (US $9.97). The objective of the YES-O is to take care of the vermicomposting site including the worms in order for it to generate vermicasts (fertile soil) reduce solid wastes and possibly generate livelihood for the school community.

In time, expected outputs were achieved by the school. Scrap papers and kitchen wastes are no longer a problem, rather more wastes need to be fed to the voracious eaters in the garden.

1ST Harvest			
OPERATIONAL COST			
Construction Materials	P	200	
Vermicomposting Materials		P	270
Maintenance (per month)	P	300	
Total		P	770
BENEFIT			
Soil produced (kilo)			159.66
Economic Value (P10/kilo)	P	1,596.60	
Operational cost	P	770.00	
Initial Net Gain	P	926.60	
Economic Valuation of soil		P	4. 82



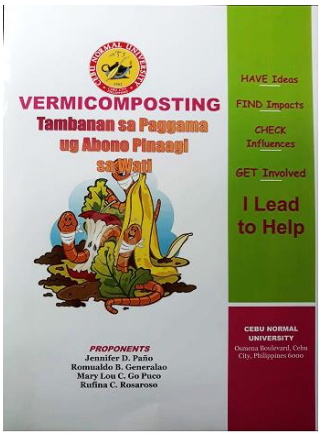
Cost-Benefit Valuation and Soil vs. worm production (Paño and Merin, 2015)

7. Building on the Change

Vermicomposting through *Eudrilus euginae*, fragment the litters, perform the microbial activity in its gut and the debris mixture egested forms the soil plasma called *vermicast* (Shipitalo & Protz ,1989) that is five to eleven times organically enriched thus may enhance germination and plant growth (Hidalgo,1999; Galli, 1992).

Accordingly vermicomposting entails low technology yet, it is a sustainable means of reducing solid wastes of the school. Banking on this, I thought of translating it into a Community Extension by Calling it, "Vermicomposting – Turning Garbage into Gold". The community extension project trained community residents of Barangay Nangka in Balamban, Cebu; considering that one of their problems is solid waste management.

The following are the community extension project held in Barangay Nangka, Balamban, Cebu on SY 2014-2016. It has the intention of capacitating the community on vermicomposting skills to reduce solid waste and for possible livelihood source.






The Community Extension Proponents Dr Jennifer D. Paño, Ms Mary Lou Go Puco and Mr Romualdo Generalao in vermicomposting Demonstration and set-up; top left is the Module created for the said extension project.

Research Article was also published on Vermicomposting
Paño, Jennifer D. and Merin, Jewish A. 2015. Vermicomposting of School Wastes with Eudrilus euginae: Production and Economic Valuation.

Links:
https://www.ajouronline.com/index.php/AJAFS/article/view/2460
file:///C:/Users/user/AppData/Local/Temp/2460-8996-1-PB.pdf

Apart from Vermicomposting, several other activities in all Ecology classes in the College of Teacher Education were aligned along the other SDG-ESD Components:

A. SDG Goal #12 **Responsible Consumption and Production**
The vermicomposting on the ground were now constructed using a "Vermi-condo" to save space in a school with a very limited space.

Life over Leftover – Solid Waste Management
(Canteen Food Left overs) using Fermented Rice

B. SDG #2 Zero Hunger – Naturally-grown chicken

C. **SDG # 11 Sustainable Cities – Plastic Mural**

This are plastic caps of various PET bottles which are put into collage and are used by students for their selfie background, the words "*CHAR*" and "*WERPA*" are millennial words but given an acronym on sustainability.

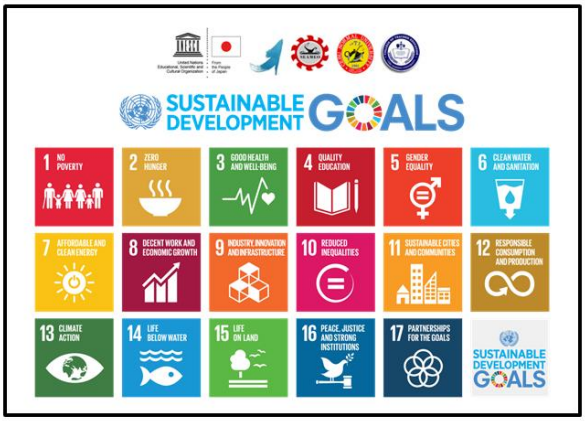
D. **SDG # 7 Affordable and Clean Energy - Nature's Charcoal**

E. **SDG # 4 Quality Education – Curriculum Integration of ESD** on Ecology Topics, Special Topics and Social Dimensions of Teaching.

All these activities were housed in the Green Corridor of CNU.

8. Anchoring the Change in Corporate Culture

On January 4-6, 2018, The College of Teacher Education will be holding its Curriculum Quality Audit, The ESD Focal Person was invited to give an overview on how ESD may be integrated into the curriculum. In order to guide the faculty members on the SDG Goals the **Plastic laminated fan** (with a back and front layout as seen below) will be distributed to everyone.



Front

Back

It has also been confirmed by the Dean of the College that an ESD Office will be located on the third floor of the College building in early part of 2018.

The synergy between strong leadership and community ownership using top-down and bottom-up approach will provide the means to achieve sustainability in education.