

# A Word with the Future

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**Abstract**—People wear away at their environment as though they have another to inhabit once this one simply ceases to exist. Human impact is taking its toll on the environment and something must be done before it is too late. Harvesting Hope was created to address these very issues specifically regarding agriculture and the effect of farming on the environment as well as supporting these families. The group has made contributions in the form of low water wastage irrigation systems and organic seeds. Additionally, steps have been taken to develop an effective, organic fertilizer. Coconut oil and Epsom salt were used as the oil foster natural anti-pest properties and the Epsom salt improves the fertility of the soil. Despite weather mishaps, the seeds that had been coated in this mixture produced broader and taller plants that harbored a more vibrant green color. These results begin to prove that conventional fertilizers do not necessarily provide the most desirable results. A natural alternative could be the answer. Next, to this experiment, the group has made steps towards developing an app which will begin to bridge this gap between producer and consumer that exists in society. Everyone must pitch in to reach a level of sustainability or equilibrium, specifically adolescents harboring risk-taking capabilities.

**Index Terms**—environment, human, empathy, sustainability

## I. INTRODUCTION

The world displays deep scars of human touch. Since 1998, the 12 warmest years in history have been recorded. [1] In 2012, 2.4 million pounds of carbon dioxide were being released every second. [2] This number has only grown exponentially. In the future, scientists believe that Antarctica will see its first ice-free summer in 2040. More than 1 million species face extinction due to habitat loss and changing conditions. [3] Ultimate destruction is in the forecast.

### A. Human Behaviour and Destruction

Since the primary steps of evolution, humans have used their developing abilities and tool-making capabilities to hunt and ultimately leave other carnivorous animals without sustenance and on the road to extinction. These early humans began climbing their way to the peak of the food chain. A similar process applies today, but now human's access to new technology is greater than ever and only intensifies the magnitude of their impact. There has been a development of great narcissistic ideology relating to the belief that humans run the world. This disregard for other organisms will ultimately lead to self-destruction.

## II. AGRICULTURE AND THE ENVIRONMENT

Agriculture is an industry vital to the gross domestic product of a nation and employs a large portion of a population, especially in Asian countries. In 2014 in Thailand, agriculture employed  $\frac{1}{3}$  of the population. And, around 41% of Thailand's area is used for agricultural purposes. [4] But, agricultural processes are the main contributor of nitrous oxide emissions which are responsible for regulating atmospheric ozone levels and a contributor to acid rain known to wipe out entire forests and deem lakes dead. [5] Something so vital to society eats away at it in ways including but not limited to land conversion and the loss of habitat, water wastage, and contamination, and soil erosion and poisoning. [6]

## III. SUSTAINABILITY

Sustainability relates to achieving equilibrium between all environmental, social, and economic aspects of society (Fig. 1). This idea of sustainability, specifically environmental sustainability can be displayed on a scale. This is a product that is being turned into a children's toy.

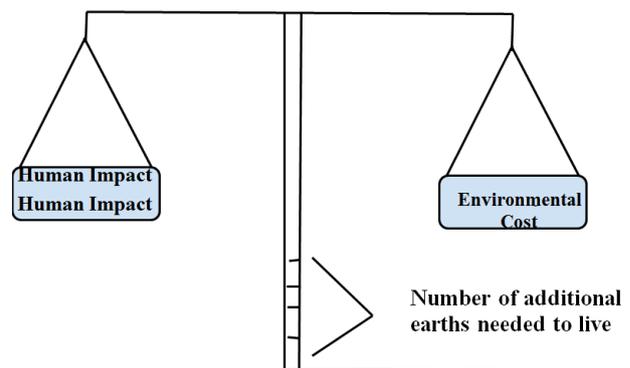


Figure 1. The scale displays the effect of human impact on environmental cost and how many additional earths would be needed to live sustainably as depicted by what is on the scale. (Madison Mehta)

## IV. HARVESTING HOPE

In October of 2017, the organization Harvesting Hope was founded to take these manifestations of change from the mind and turn them into something tangible. The group works to serve as spokespeople in support of local Thai farmers and promoters of sustainability, specifically sustainable farming. Ultimately this gap between producer and consumer must be bridged to achieve a sustainable future. The consumer has control over what is put on the market and what measures must be taken for

this to happen. Change must work from the bottom up as frequently policymakers and leaders will not take the first step. In 2015 a group of representatives came together to device a 17 step plan to reach sustainability. (Fig. 2) These individuals left the conference overjoyed but success is not measured until this roadmap is put into action. The global community must come together.



Figure 2. Paris agreement in 2015 producing the 17 sustainable development goals. [7]

#### A. Achievements

Through fundraising endeavors, Harvesting Hope accumulated over 50,000 Thai Baht. Members of the group traveled to Suphan Buri to make contributions of low water wastage irrigation systems and organic seeds. (Fig. 3) While there, the individuals were able to develop a greater sense of empathy for these farmers who go unnoticed but fuel society. The group runs sustainability seminars for young individuals as they ultimately hold the keys to the future. (Fig. 4) The group has been able to present a keynote presentation at a SERVICE conference and work in collaboration with East West Seed and the Agriculture Food and Marketing Association (AFMA) that is in alliance with the FAO.



Figure 3. Suphanburi trip 2017 (Madison Mehta)



Figure 4. Kindergarten seminars (Madison Mehta)

#### B. Goals

The group wishes to create a documentary interviewing a small scale farmer which will create a sense of empathy between producer and consumer. Additionally, to begin a farmer's market at the International School of Bangkok and beyond. To create a children's toy which begins to explain this idea of sustainability. To develop an eco-friendly fertilizer. And finally, to start an app to connect consumers and producers.

#### C. Organic Fertilization Method

Chemical compounds found within fertilizers often seep into the soil plaguing future crops and the water supply putting people at risk of ingesting water-borne bacteria and contracting an infection. Harvesting Hope decided to devise a plan for a safer alternative to conventional fertilizers. Marigold Seeds were dipped in a paste of equal parts Epsom salt and coconut oil and dried for 1 hour and 10 minutes. Epsom salt or magnesium sulfate can improve the overall soil quality, especially regarding magnesium content. The coconut oil is a natural insecticide due to its slippery quality. [8]

On December 17, 2017, 4 coated seeds and 4 non-coated seeds were planted and placed outside in an area of direct sunlight.

On December 21st, 1 coated and 1 normal seedling appeared. The coated seed was slightly taller and the leaves were a bit shinier and brighter in color. (Fig. 5)

On December 23rd, 2017, 3 coated and 3 normal seedlings appeared. The coated seedlings were taller and the leaves remained shinier. (Fig. 6)

On January 8th, 2017, the 3 coated and 3 normal seedlings continued to grow in height and leaf width. The coated seedlings remained taller and shinier. (Fig. 7)

On January 10th, 2017, there was a storm and strong wind which uprooted the seedlings which were ultimately not salvageable.

This test will be repeated in the coming month but from the preliminary collection, the coated seeds germinated faster than the non-coated seeds. Coated seeds also looked stronger and more green in color than the non-coated seeds. If effective, this simple paste can be used instead of pesticides in some cases.



Figure 5. December 21, 2017, normal on the left and coated on the right. (Madison Mehta)



Figure 6. December 23, 2017 (Madison Mehta)



Figure 7. January 8, 2017 (Madison Mehta)

#### D. Farming App

Plans are being made to develop an app that will connect consumers with farmers that are taking advantage of sustainable practices. In Bangkok to begin, farmers who want to take part in this service are supported with sustainable farming product contributions from Harvesting Hope. Individuals, especially of the expatriate community can read about these farmer's backgrounds and order specific produce from them directly. The prices of these organic vegetables are the same as regular

produce as these farmer's must support their families. The consumer is promised organic produce grown without conventional pesticide practices. Their order will be delivered directly to their house as eliminating the middleman is critical. The app also provides people with information gauging the benefit of what they are doing regarding achieving sustainability.

#### V. ACTIVE ADVOCACY

To hopefully create a ripple in the community Harvesting Hope follows a simple formula known as active advocacy. Many label this idea of "advocacy" as the "talk without the action" but when broken down the purpose becomes clear.

##### A - Awareness

This is the first step and has to do with marketing the idea in a way that caters to the audience.

##### D - Drive

Through the sharing of concerns, a strong connection is developed with the audience as they begin to feel a sense of urgency to act; this must be tended to as oftentimes it begins to fade with time.

##### V - Voice

This audience will take what has been shared with them and pass it on to those around them. The former six-degree separation theory tells us that the average number of acquaintances separating any two people regardless of who they are is 6. This number has shrunk to 4 due to social media. [9] Ultimately, news can spread to a sea of people in no time.

##### O - Optimism

It's essential to present your audience with a look at what could be as only once they see their destination are they able to fill in the gaps. This means painting the future in a positive light.

##### C - Care

To create change, one must tend to their cause to ensure that it will withstand time.

##### A - Assertion

This step is putting one's roadmap or plans for an event or project relating to the cause in action.

##### C - Collaboration

This is the step relating to continuing to join forces with an array of different individuals who will ultimately be able to push the cause further.

##### Y - Yield

This is the step when one can step back and reflect on what has been done, and, repeat the process.

#### VI. CONCLUSION

Sustainable farming methods and materials must become more accessible to a broader range of individuals for change to be made. Additionally, there must be a sense of mutual benefit between producer and consumer that begins when empathy is formed.

Sustainability is only achieved when society as a whole makes adjustments to their manner of living.

Change is not something that can be made in the future. The future is simply a manifestation of time beyond that

of the present moment. Generations of tomorrow will witness the extinction of the majority of species, total melting of the polar ice caps, the forestry wipeout and contaminated water and food supply if nothing is done today. [10]

Those in power must put away this fear of failure and think like a teenager harboring a sense of risk-taking capabilities. Together, the world as a whole must paint a picture of hope for the future before time runs cold.

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**Madison N. Mehta** is originally from the United States of America and is a student currently attending the International School of Bangkok. She has been living overseas for over six years. Madison started the group Harvesting hope in support of local Thai Farmers and promoters of sustainable agriculture. Madison strongly believes that making a change isn't something designated for adults and passing the torch to young individuals who will ultimately shape the future, is critical.