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Vietnam, Factor 16: Education

Vietnam: Caring for the Soils to Ensure Agricultural Success

1955; gunshots fill the air, some remaining airborne until gravity grounds them, others finding lodging inside the limbs of villagers, young and old. Chemicals are showered onto crops and humans alike, slowly degrading both from the inside. Many flee, few manage to survive. Vietnam is torn in two. The North backed by the communist Soviet Union and the South under the iron fist of the capitalist Americans. The war raged on for twenty long years in Vietnam, finally ceasing on April 30, 1975. Fast forward forty years to 2015 to better understand the once war ravaged country, built upon poverty, which has slowly begun making its mark on the world. Despite many advancements, the subtropical southeast country is still largely susceptible to its geographical location.

Vietnam is surrounded by two bodies of water; the South China Sea and the Gulf of Tonkin. Both of these water bodies contain large amounts of pollution that finds its way into Vietnamese soils. In order for the Vietnamese to ensure agricultural success for generations to come, the country must find a way to conserve and preserve their precious soils. Agricultural education is critical so that citizens understand their actions and the consequences of their actions for generations to come. If the diversity found in Vietnamese soils is to withstand development and population growth, the people from the ground up must work to educate those most responsible and actively involved in the degradation of the soils.

Families in Vietnam are typically what we know as a nuclear family, composed of a husband, wife, and child. Traditionally, upon marriage the woman will move in not only with her husband himself but his parents also. The number of children in a household may vary. If the first-born is a female it is very likely that the family will try again in order to have a male child. In the patriarchal society having a boy can ensure your future as a parent. Parents raise girls with the knowledge that they will eventually have to leave them after marriage to be the daughter to their in-laws. Boys will receive education as a necessity, whereas a girls education was something done only when the family had a monetary surplus.

Modern day Vietnam however, has nullified many of these traditions. Many new couples are living by themselves and moving away from family. Women are also playing a larger role in society. In 2009 the average female's literacy rate in Vietnam was 87% as compared to a males at 94%. Though men are still the majority in literacy and education, women are quickly working their way up. Overall the Global Gender Gap Report (2009) rated Vietnam 71 out of 135 countries with a gender inequality, giving it a score of 0.680. In 2014, inequality jumped to 0.691, making Vietnam's rank go down to 76th out of 142 countries. While there are disparities between the educational attainment of ethnic minorities, Vietnamese children must attend school for at least five years following Kindergarten. Unfortunately, higher education in Vietnam is not recognized internationally.

Access to healthcare is determined by largely by income. Despite being most at risk for disease, the rural poor are never privy to proper healthcare. It is also very common for the poor to delay any sort of medical treatment, trying to ignore the issue and take care of any work that must be accomplished or to simply avoid having to pay. This sort of behavior can be deadly. Eluding routine checkups can allow any even the most simple of sicknesses to turn detrimental.

The most predominant Vietnamese crops are corn, rice, sweet potato and cassava, grown on a farm that is about 11 sao (0.9785 acres). The typical diet consists of tuber, beans, corn, sweet potato, cassava, fish as well as other various poultry. One agricultural practice in Vietnam is the use of human and pig excrement as fertilizer. Though the use of excreta as fertilizer is a very common due to the high content of nutrients,

using it improperly can cause serious damage to the surrounding area. Pigs, as well as humans, are typically not strict herbivores. Thus, their waste tends to be nutrient deficient and also serves as a pathway for pathogens in crops meant to be consumed.

The Vietnamese also commonly use pesticides on their crops. Pesticides are not only harmful to the crop's damaging pest, but can also be harmful to humans and the environment. Due to the harsh chemical composition of pesticides, they should always be used as a last resort. Relying on them can degrade the market value of crops and make them unsafe to eat. Pesticides are also absorbed into soil, and with a bit of rain and slope they can travel into bodies of water. This is a great threat to the many legume-grown crops of Vietnam; soybeans, mung beans, groundnuts and rice, Vietnam's largest cash crop.

The major barriers for agricultural productivity in Vietnam are based largely in soils and education surrounding the land use management of the soils. Malpractice in farming is either actively stripping away or causing an overabundance of nutrients in soil, both of which can be equally harmful and stunt any sort of agricultural growth. Farming must be done with great heed; something done today could affect the environment and its inhabitant's years from now. Farmers need to understand slope, rainfall, soil texture, conservation practices, and capability classes to make best practice management decisions.

With education emphasizing soils and land use management in Vietnam, agricultural production could increase positively. Learning about the different variations of soils (texture, capability class, and drainage, etc.) can allow any grower to make mindful decisions on what the land could be used for. Careless discernments can cause any number of issues when it comes to proper land use. For example, soils that are light and present with a gritty, sandy texture should be used in areas requiring drainage. If proper drainage was required to take place on a soil that was heavier and more clayey, flooding would occur because the water would be unable to infiltrate through the ground. Something as simple as a missed land use conservation practice (grassed waterways, terracing, planting on the contour, and cover cropping for example) could result in soil degradation.

Currently, the World Bank in Vietnam is reconstructing their land use law. The revision of the law keeps agricultural land use transparent, equitable land acquisition/compensation possible, land use rights of vulnerable groups present, and land planning management (World Bank) in top priority. Creating these new laws would allow for more sustainable agriculture, which could greatly improve the level of agricultural production. The land management of Vietnam has improved in comparison to years before. With the combined influence of rules that protect small farmers and a soil based education, no area of land would go to waste.

Vietnam has an extremely diverse climate. North Vietnam is a mountainous region that experiences all four seasons. The dry season occurs between October and May, with a wet season that falls in between the months of June and September. Central Vietnam has a tropical climate with intense heat and heavy rainfall. Lastly, Southern Vietnam is also a tropical region with a rainy and dry season from November to May. The varying climate and unsteady weather in Vietnam limits certain agricultural options and makes the overall diagnoses for the country's soils more tedious. Each environment will have to be given a region specific curative in the case of their soils and the best possible way to use the land. Another limiting factor is the population of Vietnam. It's growth has been on a consistent rise of 1% since 2005. Though the population growth is low, Vietnam is still home to 90,730,000 others (World Bank). Even if you educate hundreds, people have their own sovereignty and many use that to do what they see fit which is often an issue for the environment. To combat this reckless rebellion, information must be provided in order to at least allow the possibility of individuals making better decisions on things that are very impactful on their surroundings.

The knowledge of soils and land use management should first and foremost be started with farmers and other land laborers. The information should be introduced as mandatory training when workers are first

starting out on their jobs. Agricultural education focusing on soil health also needs to be a piece of the compulsory curriculum in the public schools especially in rural settings. By teaching and showing best use and best practices, students and farmers will have options to choose from and will not be limited to what was demonstrated solely by their own family.

The lack of background knowledge on soils warrants the large possibility of the corruption of crops and the environment. For example, a factory that produces a high rate of heavy metals, one of which being lead, is located miles away from a potato farm. Even being many miles away from the factory the farm will still be in danger of lead pollution. Lead is an extremely dangerous heavy metal that can have major effect on the human body in even the simple form of dust. Lead poisoning can be harmful to organs, the nervous system and bone marrow. Minor cases of lead poisoning can cause headaches and abdominal pain, in major cases it can cause developmental issues in the brain and death. Soil absorbs any and everything that surrounds it which affects the suitability of the land. Is it safe to grow tomatoes here or should this area be used for woodland harvesting instead?

Vietnam, once a very poor country is rapidly growing and changing for the better. New laws are being put in place to help protect the land and ensure lawful use of the environment as well as a multitude of projects. The sustainable agriculture project, managed by Christopher Jackson, aims to improve the farming in Vietnam and strengthen public agencies under the clause of the Agricultural Restructuring Plan (ARP), created in the summer of 2013 by the Vietnamese government. This plan was implemented by the government in order to keep up with highest demands of production; quality, standards compliance, reliability and sustainability (Hunger Explained). In order to contend with competition worldwide, these factors must be taken into consideration and used in order to configure an appropriate agricultural system.

The Agricultural Restructuring Plan is built upon six paramount principles. The First being that the objectives for agriculture and rural development will be set within the conceptual framework of sustainable development. Second, Vietnamese agriculture will be increasingly market-based, even as broader rural development continues to be socially guided. Third, in many spheres of activity, the role of government will progressively shift from being the (primary) provider of investments and services to becoming the facilitator of such activities undertaken by others. Fourth, the government will apply the concepts of partnership and co management to define new relations with both the private sector and community organizations. Fifth, all segments of society, at central and local levels, will have distinctive roles to play in the restructuring process. And sixth, restructuring will be regarded as an incremental, evolving process allowing adjustments and adaptations along the way (Hunger Explained). In the long run the Vietnamese government wishes to not only protect their country's products but also the rights of the little man; small farmers.

Another project currently in motion in Vietnam is the renovation of general education, lead by Michael F. Crawford. Approved June 30, 2015 and planned through December 31, 2020, the project's main objective is to improve the effectiveness of instruction and raise students learning and comprehension of the material. The strategy is to make modifications of the curriculum with a competency based approach as well as new textbooks containing the revised course. It will be implemented from first to twelfth grade. Schools with economic disadvantages are also in consideration of the education renovation and they will be provided with the new curriculum and textbooks. Schools will be monitored and evaluated in order to maintain a consistent improvement with the courses taught.

In conclusion, Vietnam needs a strong agricultural curriculum surrounding best use practices for soils. Due to the variety of slope, soil types, texture, capability classes, and drainage of Vietnam's many soils, farmers, local people, and students working within the soils need to understand the importance of soil health. The application of chemicals and non-point pollution needs to be addressed systematically. If

Vietnam wishes to increase its global food security, soil health needs to be at the forefront of both research and education. People across the country need to understand the implications of soil degradation.

If the knowledge of soils and land management were to be included in the curriculum for the renovation of the general education, a new generation of environmentally conscience and competent students would be created. The children would be able to impart the information to their parents and put their own ideas into action when they grow older. The once degraded environment would be looking to a brighter future because of new ordinances. Vietnam is soon to be on its way agriculturally for its soil based crops.

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