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4/5/2021

For the creation of a Vocational Agriculture Education System in Kyrgyzstan...

INTRODUCTION

Kyrgyzstan is a lower middle-income country located in Middle Asia. Before the fall of the U.S.S.R., Kyrgyzstan acted as a Soviet satellite state along with many of the other Middle Asian countries. Its population is currently approximately 6.5 million (UNDESA). The average median age of Kyrgyzstan has increased from 21 years of age in 1990 to an average median age of 27 as of 2020. This average age, however, is not expected to decrease. By 2050, the average age of the populace is expected to increase to 31 years of age (UNDESA). This general aging of the populace coincides with a somewhat great population increase occurring during the late 1950's early 1960's (UNDESA) which saw the population move from 2.1 million to 3 million in a ten-year period (UNDESA). Unusual before and since. This boom could be contributed to the diversification policies of agriculture, industry, and general societal restrictions by the Soviet Union under Nikita Khrushchev (Britannica Encyclopedia), but this idea is merely conjecture in this paper. Following this baby boom, a general decrease in births in Kyrgyzstan occurred until 1991. In the decade following the fall of the Soviet Union, Kyrgyzstan annual growth rates shot down to 0.86% through the years of 1990 and 1995 (UNDESA). It is never again expected to reach pre-Soviet levels for the foreseeable future... (UNDESA). Both population statistics, however, do not bode well for this Middle Asian country. This dramatic increase followed by a sharp then steady decrease has created a looming threat in Kyrgyzstan. As the large population of Kyrgyzstan grows older, more and more young people will be needed to not only care for the elderly, but some say just as important, the industries they are leaving behind; agriculture included.

Thus, a refined system of agriculture education is needed along with a feeling of unity by the agricultural workers of Kyrgyzstan. These two things, agriculture and unity, are paramount for the continued success of agricultural security in Kyrgyzstan. A system to teach these things is vitally needed.

FAMILY OVERVIEW

The average family size in Kyrgyzstan is 4.2 members. Sixty percent of the population lives in non-city, rural areas (United Nations Economic and Social Affairs #17). Meaning for most, agriculture is certainly a present part of their lives and, more importantly, a viable career option. As of 2020, most individuals worked in the service industry at 59.4% of the population employed. This was followed by industry then agriculture at 24.7% and 20.4% of the employed population (UNdata). The economic and infrastructural development in Kyrgyzstan allows most citizens to have access to food and clean water. As of 2015, 10% of Kyrgyz people do not have access to clean drinking water. However, this statistic has been falling steadily since the end of the cold war and the independence of Kyrgyzstan (World-o-Meter). The average household income of a Kyrgyz family is 977.460 USD (CEIC). Education is compulsory until the grade of 9, by which time they can continue their education in high school equivalencies or move into the

workforce (Scholar Pro and K12 Academics). Though access to this education is high, many do not continue their education. It must also be noted that most educational institutions are located in the rural areas of Kyrgyzstan, at 80% (UNICEF), and the mandatory attendance policy can, therefore, be difficult to enforce in more isolated areas. It is not uncommon for agricultural families to remove their child from the education system to help with their farms. This problem affects even the most developed nations, so it is no surprise that it is present here. It may be pertinent then, to the attendance of children to school, if school teaches them how to better function on a farm. If they can seek to become better workers on a farm at school, then the industrious and ever shrewd farming families should no doubt see the great opportunity school provides for their child. This both increases school attendance and teaches important knowledge and skills needed in agriculture.

ECONOMIC OVERVIEW

Between 2005 and 2020, the agricultural piece of Kyrgyzstan's GDP grew from 769.98 million to 1.060 billion US dollars ((UNdata) and (United Nations Data)). The Agricultural Production Indicators confirm this with an increase in production, from 105 to 117, between 2010 and 2020. Industry rose from 543.66 million to 2.500 billion between 2005 and 2020 (UN Data and Statistics). The services sector, a major player in the Kyrgyz economy, grew nicely between 2005 and 2020. In 2005, the size of the services economy and other activities was 1.079 billion and by 2020 grew to 3.706 billion (UN Data and Statistics). All of this growth, however, bides an unfortunate future when the population growth in Kyrgyzstan is shrinking. This means that all future generations will have fewer and fewer new people to work in industry, agriculture, and services. Efficiency must increase to prevent a plateau in economic increases due to worker shortages. Higher productions with fewer people will become required. Agricultural vocational education *must* be instituted for the protection of the Kyrgyz agricultural economy.

SOLUTION EMPHASIS AND SUMMARY

The indicators of population growth, economics, and educational difficulties have all pointed towards the creation of a national vocational education system for the betterment of student agricultural learning. In similar situations, it is usually up to the Governmental Educational Administration to oversee the creation and/or implementation of such a program. In this case, however, certain extra steps should be taken to assure its success.

Firstly, further background on the education situation in Kyrgyzstan is required to understand the extra steps of implementation that are needed to assure the proper function of such a program. Foremost to the country of Kyrgyzstan is its geography. 80% is covered by the Tian Shan mountain range (ITIRC), complicating travel. These logistical issues are slowly being solved through organizations like Euro-Asian Transport Links supported by UNECE, but at present, much of the nation is somewhat disconnected. Furthermore, it is of note that approximately 80% of schools are in these rural areas (UNICEF). All of this together creates a situation in which education in the past has suffered due to improper school standardization and school mapping.

Secondly, the history of Kyrgyzstan has shown a rather chaotic history, with no less than 2 revolutions in the past 15 years alone. It can be said that consistent governmental policy is hard

to find in an ever-changing political landscape that has been shown to be more prone to revolutions than other countries. This changing landscape can adversely affect the education of children which, far too often in countries around the world, is one of the first things to be defunded when certain economic promises are made.

Thirdly, there is currently a questionable infrastructure for the teaching of educators for agriculture, nor is there a major emphasis for the teaching of agriculture in all higher universities. This problem of infrastructure would require the creation of (or addition to another university) a new state institute with emphasis for the teaching of vocational agriculture, general agriculture, and other agricultural supporting industries. This will allow not only teachers of agriculture to be trained locally, but also support industries surrounding agriculture, like agriculture machinery technician or even technical skills like welding or agricultural engineering.

These three facts display two very important additional points that must be stressed upon the implementation of this vocational education program: Firstly, the solution to standardization and connectedness in schools is to make efforts to improve such inefficiencies. Secondly, the full commitment of the government to such a program.

The first solution, coincidentally enough, is already underway. Since 2012, the Kyrgyz government has been seeking to improve school efficiency and in 2018 (UNICEF), the United Nations International Children's Emergency Fund promised aid to this connectivity mapping endeavor and to provide aid from then on to improve government spending and efficiency in education. The second solution, however, is up to the government and not exterior organizations.

Given this information, the requirements for a National Agriculture Vocational Program may be established. Firstly, before an idea can become a working solution, it requires funding. As this program is of the national and educational sort, it is up to the Kyrgyz Ministry of Education and Science to oversee and provide the main source of funding. A similar program called School Based Agriculture Education being conducted by AgriCorps in Sub-Saharan Africa offers a few solutions to both funding and governmental support. The president of AgriCorps, Trent McKnight, in his recent paper "Empower Youth - Transform Agriculture" notes that the smooth running of an agricultural education program "will require the buy-in of local governments, including the Ministries of Finance, Trade and Commerce. Their direct involvement will secure additional budget funds, which neither the Ministries of Agriculture nor Education often have." (Trent McKnight) The cooperation by multiple governmental ministries for the funding of an Agricultural Education program provides both better funding and governmental cooperation; exactly what is needed for the successful running of such a program in Kyrgyzstan.

Secondly, McKnight talks about the cooperation of the whole sub-Saharan region through the African Development Bank. The mirror organization for Kyrgyzstan and surrounding countries would be the Asian Development Bank (ADB). The cooperation of the ADB in this endeavor provides not only external funding to limit the impact on the Kyrgyz government, but also would encourage surrounding countries to build similar educational programs.

With funding secured, the organizational structure of such an organization is next. The format of such an organization would not be unlike many of the already existing organizations that provide Vocational Agricultural Education. Some of the more well-known would be that of FFA and 4-H in America, but many others exist. For example, in Trinidad and Tobago, a healthy 4-H program exists for youth 7-19 years of age. As of 2016, the program had approximately 120 clubs and 2500 4-Hers. These youth participate in on-going agricultural programs such as maintaining school gardens, rabbit rearing, and composting for starters. The program also has community outreach elements that provide food baskets for the poor and even visit the elderly ((Michigan State University et al.) and (The Food and Agriculture Organization of the United Nations)). Such a program seems to provide not only educational benefits, but also the benefits of community involvement and presence. It can be said that a program that helps its people is already successful.

For an expansion on an already mentioned program, the SBAE (School Based Agricultural Education) program being conducted by AgriCorps cites 4 principles for its educational model: Firstly, 'Classroom Instruction'. McKnight says that the development of a "students' understanding of agricultural language, core agricultural science, technology, engineering and math (STEM) principles, agricultural economics and locally relevant governmental structures" is of paramount importance during classroom instruction. Secondly, McKnight says that a 'School Demonstration Farm' is important to an agricultural education program. This point is of paramount importance, for this stage "connects science to practice on a student-led farm," an important step for the proper transmission of classroom teachings into practical tools. Thirdly, McKnight recommends a 'Home Entrepreneurship Program' to allow students to practice the ideas they have learned. It also provides a transmission link of information between the student and the parents, claims McKnight. Finally, and perhaps the most important, 'Leadership Development.' It is not possible, one can say, for the right passage of humanity to occur without the leadership of individuals. If so, it is second only to education that leadership development holds reign. McKnight himself claims "Through agricultural student organizations, students participate in leadership activities, public speaking presentations, parliamentary procedure competitions, crop and livestock judging, agriculture fairs and leadership camps." These being the pathways by which leadership is taught. This connects nicely to the second portion on the implementation of an Agricultural Vocational Education Program in Kyrgyzstan: the implementation of a national student organization.

For the national cooperation of the farmers of the future in Kyrgyzstan, a common experience, a common group with which all Kyrgyz farmers can eventually relate, is an absolute necessity. How can a country claim to have unified agriculture if one does not know the methods of agriculture that their regional neighbor has? What is the solution to regional dysconnectivity that Kyrgyzstan is so susceptible to due to its mountainous geography? What can the farmers of the future in Kyrgyzstan do to better improve their worldviews within their own nation? All of this is possible with the creation of an agricultural student organization focused on inter region competitions, leadership training, and unity through shared organizational traditions to build a shared identity among Kyrgyz farmers of all agricultural, regional, and ethnic backgrounds. Without such an organization, how can an Agricultural Vocational Education Organization claim that it has taught all that a child needs to know to be successful in an ever-changing agricultural landscape? How can it claim that it has created unity in farming? The existence of a student-led

organization as a complement to an Agricultural Vocational Education Program is not optional, it is required. If not required for sound operation, then for the betterment of students beyond the simple tenet of knowledge memorization.

All of these things implemented, it suddenly becomes possible over time to standardize agricultural practices with the best methods and provide the brightest farmers to grow the agricultural industry beyond simple farming. Though the main objective of such an organization is to primarily prepare *farmers*, it can, no doubt, provide exposure to logistical and infrastructural occupations like grain bin service management, agricultural engineering, agricultural communications, and agriservices like soil engineer, agricultural transportation services, and veterinarian services. Beyond simply bolstering the general knowledge of farmers in Kyrgyzstan, this also provides pathways to these support industries vital to the operation of any agricultural economy.

CONCLUSION

In Kyrgyzstan, the ever-shrinking population growth in tandem with the ever-aging population poses a threat to the security of Industry, Service, and most importantly Agriculture. As the need for a greater, more educated labor force in Kyrgyz agriculture rises, how will they become more educated if no structure for teaching vocational agriculture exists? How can the Kyrgyz people match a challenge that they are currently underprepared for? The solution to this is the establishment of a Vocational Agriculture Program all across the many secondary and tertiary learning institutions of Kyrgyzstan to not only teach these future farmers the agriculture methods of the future, but also expose them to alternative careers in agriculture, leadership training, and community outreach through extracurricular organizations connected to these Agricultural classes. In other words, to not only build sustainability in Agriculture, but also all surrounding industries that support it.

In comparison, Kyrgyzstan ranks higher in food security than many other countries. It is imperative, however, that it takes action now for its future agricultural sustainability. In the 2019 “The State of Food Security in the World” Report published by the FAO, IFAD, UNICEF, WFP, and the WHO, a general prerogative was set. The report states to “safeguard food security and nutrition, it is critical to already have in place economic and social policies to counteract the effects of adverse economic cycles when they arrive, while avoiding cuts in essential services, such as health care and education” (Food and Agriculture Organization of the United Nations et al. #5). In other words, we must protect and improve what we have. We must make right structural inefficiencies and address needs in the economies that already exist, that already provide. Failure in a currently providing economy not only impacts the failed country, but all other countries that rely on the imports of that economy’s agriculture. Thus, all the people of that dependent country would suffer due to the lack of proper prevention that would have prevented such a disaster. The agricultural world is ever susceptible to attack, and not simply the programs we are building, but also, and perhaps with a doubled danger, the ones we have already built.

Bibliography

- Agadjanian, Victor, and Evgenia Gornia. *Economic Swings, Political Instability and Migration in Kyrgyzstan*. Springer - European Journal of Population, 2018. *US National Library of Medicine/National Institutes of Health*, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6497682/>.
- Connors, James J. *The History of Future Farmer Organizations Around the World*. vol. Volume 54 Number 1, University of Idaho/Journal of Agricultural Education, 2013, <https://files.eric.ed.gov/fulltext/EJ1122267.pdf>.
- Dadzie, Christable E., et al. *Youth Employment Programs in Ghana Options for Effective Policy Making and Implementation*. World Bank Group, 2020, <https://openknowledge.worldbank.org/bitstream/handle/10986/34349/9781464815799.pdf?sequence=2&isAllowed=y>.
- The Food and Agriculture Organization of the United Nations. *Trinidad and Tobago*. The Food and Agriculture Organization of the United Nations, <http://www.fao.org/yunga/you/trinidad-and-tobago/en/>.
- Food and Agriculture Organization of the United Nations, et al. *The State of Food Security and Nutrition in the World: Safeguarding Against Economic Slowdowns and Downturns*. FAO, UNICEF, IFAD, WFP, and the WHO, 2019, <https://www.unicef.org/media/55926/file/SOFI-2019-in-brief.pdf>.
- Index Mundi, and CIA World Factbook. *Kyrgyzstan Land Use*. Index Mundi, 2011. *Index Mundi*, https://www.indexmundi.com/kyrgyzstan/land_use.html.
- International NGO Training and Research Center. *Decentralization in Kyrgyzstan*. International NGO Training and Research Center, 2011, <https://www.intrac.org/wpcms/wp-content/uploads/2018/11/Decentralisation-in-Kyrgyzstan-report-for-Swiss-Development-Cooperation.pdf>.
- ITIRC, Information Technology Internalization Research Center. "Geography of Kyrgyzstan." *Information Technology Internalization Research Center*, <http://itirc.org/activity/geography-of-kyrgyzstan/>.
- K12 Academics. *Education in Kyrgyzstan*. K12 Academics, <https://www.k12academics.com/Education%20Worldwide/education-kyrgyzstan>.
- Korboe, David. *Youth Development Interventions in Ghana: Policy and Practice*. Education for Empowerment (EfE) Programme, October 2014, https://oxfamibis.dk/sites/default/files/media/pdf_global/ghana_pdf/youth_development_interventions_in_ghana_ibis.pdf.
- McKnight, Trent. *Empower Youth, Transform Agriculture: An Introductory Guide to School-Based Agricultural Education in Sub-Saharan Africa*. AgriCorps, 2021, <https://www.dropbox.com/s/v9xl7gz0koqg9bm/Empower%20Youth%20-%20Transform%20Agriculture.pdf?dl=0>.
- Michigan State University, et al. "4-H around the world: Trinidad and Tobago 4-H." *Michigan State University MSU Extension*, Michigan State University, 14 July 2016, https://www.canr.msu.edu/news/4_h_around_the_world_trinidad_and_tobago_4_h.
- Scholar Pro. "Education System in Kyrgyzstan." *Scholar Pro*, <https://www.scholaro.com/pro/Countries/Kyrgyzstan/Education-System>.
- UNdata. "Kyrgyzstan." *UNdata App*, <http://data.un.org/en/iso/kg.html>.
- UNDESA, United Nations Department of Economic and Social Affairs. "UNDESA Population Database." *UNDESA Population Database*, <https://population.un.org/wpp/DataQuery/>.

- UNICEF, United Nations International Children's Emergency Fund. "Education [In Kyrgyzstan]." *Education*, UNICEF, <https://www.unicef.org/kyrgyzstan/education>.
- UniRank. *Top Universities in Kyrgyzstan 2021 Kyrgyzstani University Ranking*. UniRank, 2021, <https://www.4icu.org/kg/>.
- United Nations Data. "United Nations Country Profile - Kyrgyzstan." *UNdata*, https://data.un.org/CountryProfile.aspx/_Images/CountryProfile.aspx?crName=Kyrgyzstan.
- United Nations Economic and Social Affairs. *Household Size and Composition Around the World 2017*. United Nations, 2017, https://www.un.org/en/development/desa/population/publications/pdf/ageing/household_size_and_composition_around_the_world_2017_data_booklet.pdf. Accessed 2017.
- United Nations Economic Commission for Europe. *Logistics and Transport Competitiveness in Kyrgyzstan*. Geneva, United Nations Economic Commission for Europe, 2020, <https://kyrgyzstan.un.org/en/30858-logistics-and-transport-competitiveness-kyrgyzstan>.
- World-o-Meter, and Based on United Nations, FAO, and World Bank Databases and Information. "Kyrgyzstan Water." *World-o-meter*, <https://www.worldometers.info/water/kyrgyzstan-water/>.