

YOUTH AND THE MOUNTAINS

Student Papers on Sustainable Mountain Development



Volume VI
2018

Youth and the Mountains

Student Essays on Sustainable Mountain Development

Youth and the Mountains is a journal composed of student articles on sustainable mountain development. The journal is supported by the Department of History and Political Science, in the College of Humanities and Social Sciences, as well as the President's office at Utah Valley University (UVU). The Journal is an undergraduate publication with the aim of providing a forum for undergraduate students to share research and encourage active pursuit of quality academic scholarship. Students who have questions about the Journal, or those wishing to make a contribution (IE: filling staff positions or submitting a manuscript for review), should contact the Editor-in-Chief, Rebecca Bindra-ban by e-mail at: YouthMT@uvu.edu with the subject line of JOURNAL SUBMISSION. If you would like to see previous issues go to: <http://www.uvu.edu/hps/student/youthjournal.html>

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Editor Notes

The 2018 issue of the Youth and the Mountains journal celebrates the tradition of students engaged learning (SEL) at Utah Valley University (UVU) across the campus, including both non-traditional and traditional students, through the implementation of the United Nations (UN) Sustainable Mountain Development (SMD) agenda. It provides a forum for student undergraduate research along with advocating and developing student academic scholarship.

The first section of the journal is dedicated to the UN official documents, which highlight both the UVU SEL model, and how students during the duration of 2018 advocated through it at the UN for the implementation of three mountain targets among the seventeen UN sustainable development goals. They did that during such forums of the UN Economic and Social Council as the 62nd session of the UN Commission on the Status of Women, and the 2018 High-Level Political Forum on sustainable development. In addition, it includes a copy of the extended remarks of Congressman John Curtis (R-UT), titled “Recognizing Members of the Utah International Mountain Forum,” from the Congressional Record.

The second and the third sections are composed of student research papers that focus on a variety of SMD topics in Utah and all over the world. These sections include diverse discourse regarding SMD, and local and international issues related to it and topics such as expanding digital capabilities for society and educational purposes in India, ensuring the availability of water and the sustainable management of water in Yemen, and the empowerment of women and gender equality. The journal also addresses issues such as sustainable tourism and humanitarianism in Utah and touches on theoretical approaches to domestic and foreign policy for mountain countries as well.

Finally, the fourth section continues established tradition to include reflective essays of students on different aspects of SMD and shares a story about Mt. Elgon in Uganda written by a Ugandan international student at UVU.

When viewed in a wider context, the Youth and the Mountains journal undertakes the purpose of shining a light on mountain communities, who often are neglected at national and international levels in compar-

ison with their lowland counterparts. By doing so, opportunities are presented on how their lives may be improved sustainably.

The creation and the execution of this journal would not have been possible without the assiduous commitment by the student researchers and their long hours of work on each of their contributions. This journal would also not have been possible without my team of associate editors. Finally, I would also like to thank and extend my appreciation to the advising faculty members and the managing editor. All of support from them made possible to publish this issue of the journal, and it has been an honor to be Editor-In-Chief for a second year in a row.

Mountain issues are human issues, and the mountain communities must be in the focus of the UN 2030 Agenda of Sustainable Development. Therefore, the expansion of knowledge towards mountain issues and sustainability is centripetal to the improvement of human existence in higher places.

Rebecca Bindraban
Editor-In-Chief

The 2018 issue of the Youth and the Mountains journal at Utah Valley University provides one more opportunity for students, including the non-traditional or adult ones as part of their engaged learning to report about their studies on sustainable mountain development (SMD) in Utah and across the global mountain communities. As a result, students are encouraged not only to be involved in activities to further promote SMD in Utah and elsewhere, but also to integrate their own knowledge and experiences in the implementation of the mountain targets as part of the United Nations 2030 Development agenda.

I am thrilled to continue to work on the Youth and the Mountains journal and to witness a growing enthusiasm among students including non-traditional ones to contribute their research about improvement of livelihoods of mountain communities elsewhere. I look forward to working on future editions of the journal.

Carlos Alarco, Managing Editor

Section I

Official Documents



Economic and Social Council

Distr.: General
20 February 2018

Original: English

Commission on the Status of Women

Sixty-second session

12–23 March 2018

**Follow-up to the Fourth World Conference on Women and
to the twenty-third special session of the General Assembly
entitled “Women 2000: gender equality, development and
peace for the twenty-first century”**

**Statement submitted by Russian Academy of Natural Sciences,
The Mountain Institute, Utah China Friendship Improvement
Sharing Hands Development and Commerce, non-governmental
organizations in consultative status with the Economic and
Social Council***

The Secretary-General has received the following statement, which is being circulated in accordance with paragraphs 36 and 37 of Economic and Social Council resolution [1996/31](#).

* The present statement is issued without formal editing.



Statement

This statement demonstrates best practices in engaging students, in particular non-traditional ones, in hands-on involvement to implement the Sustainable Development Goals addressing gender inequality, principally in impoverished mountain regions of the world.

Across mountain communities, women are frequently among the world's poorest and must be at the centre of the 2030 Agenda for Sustainable Development. Being engaged in traditional roles as mothers and family caregivers, women are disproportionately affected by the challenges of mountain life. Limited access to education, information and credit further deepens their marginalization.

About 39 percent of the mountain population in developing countries, or 329 million people, is estimated to be vulnerable to food insecurity, according to a recent study of the Food and Agriculture Organization of the United Nations in collaboration with the Mountain Partnership Secretariat. When only rural areas are considered, nearly half the population are at risk, particularly women. During the period 2000–2012, despite food insecurity decreasing at the global level, it increased in mountain areas. The study revealed a 30 percent increase in the number of mountain people, including women and children, vulnerable to food insecurity from 2000 to 2012, while the mountain population increased by only 16 percent.

We would like to highlight the importance of addressing the needs of communities and families in mountain regions, where women and children continue to be left behind and are at extreme risk of neglect in the global agenda.

As representatives of the mountain people around the world, we must emphasize the urgent need to reach the most remote, marginalized communities, especially those at higher elevations, who are left almost on their own to deal with emerging new threats such as climate change and others. On their behalf, we must address poverty and hunger eradication; greater gender equality; decent work opportunities and economic growth; industry and infrastructure; and sustainable communities.

As one of the ways to raise awareness about the need for sustainable development for mountain communities, families and women, the Mountain Partnership focuses efforts in mobilizing grassroots activists, youth and students in developed and in developing nations. In North America, in particular, the Mountain Partnership has encouraged the faculty and students of one of its members, Utah Valley University, to be an active contributor to sustainable development of mountain communities, families and women in the developing world.

Utah Valley University is the largest university in mountainous Utah, a state with one of the most successful models of sustainable development in the United States. As its major contribution to sustainable mountain development advocacy globally, the university established, together with its partner the Kyrgyz National Center for Development of Mountain Regions, the international Women of the Mountains conference as a major grassroots-level forum in North America to promote the gender and sustainable mountain development agendas of the United Nations.

While the Commission on the Status of Women engages youth in promoting the gender agenda, the Utah Valley University model also engages non-traditional students, students who are usually older than 25 years. Non-traditional students are defined as the ones who may have delayed enrolment into postsecondary education; attended university part-time and work full time; are financially independent for financial aid purposes; have dependents other than a spouse; are single parents; or do not have a high school diploma. These students represent more than 30% of college students in the United States and many are women. However, most have diverse

professional skills and experiences which can benefit the world, e.g., especially in gender-related issues.

The first Women of the Mountains conference hosted by the university in 2007 served as an academic forum to both raise awareness and advocate eliminating gender inequality, as well as address sustainability challenges in mountainous areas in North America and overseas. In follow-on conferences, students undertook service learning initiatives under the umbrella of the Mountain Partnership where they played major roles in organizing and hosting through the engaged learning model. Under that model students gained professional skills and experiences by addressing real-world problems of mountain women advocacy at local, regional and United Nations levels with an instructor as a mentor.

The fourth international women of the mountains conference was hosted in Utah, October 7–9, 2015 solely through the efforts of the Utah International Mountain Forum, a coalition of student clubs at Utah Valley University. Members of the coalition, the majority of whom are non-traditional students, raised funds to host the event and brought diplomats, experts and women from mountain nations worldwide to Utah. The goal was to engage students in creating awareness and seeking solutions compatible with gender-related goals of the United Nations Sustainable Development documents.

The United Nations Secretary-Generals' Report on sustainable mountain development [A/71/256](#), from 29 July, 2016 highlighted the UVU model of student engagement in advocacy of gender and sustainable mountain development agendas of the United Nations. It emphasized the important role which students play not only in hosting the conference but also in adopting the final document of the conference with recommendations concerning the implementations of sustainable development goals and mountain targets in particular. The document recommended that goal #5 needs to have strong support for improving women's rights and welfare, including women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life; that target #6.6 requires stressing the role that women play in the protection of the environment and water sources; and the implementation of target #15.1 takes into account the critical role women play as promoters of innovation, development and cooperation for the common good.

The model allowed students, non-traditional ones in particular, to gain professional skills and experiences through the advocacy of the mountain and rural women causes on local and global levels. They did it by not only hosting the international Women of the Mountains Conferences and conducted research of gender norms, sexuality, and religion in Utah, but also by successfully teaching women business management in Zambia; working with students in Indonesia on tsunami-preparedness community education projects; conducting researches such as water quality in Senegal, the impact of mining and oil pipelines on indigenous people in Ecuador and globalization impact to Tarahumara Mexican women.

This experience demonstrates that students of all ages can play an essential role in the implementation of the 2030 development agenda of the United Nations, and gender issues in particular. It can be used by other universities in rural and mountain states of North America and elsewhere to provide similar benefits to their students, and at the same time contribute to advocating the post-2030 Development agenda and sustainable development goal #5 on global gender issues, in particular.

This statement is supported by:

The Mountain Institute, a NGO in special consultative status with ECOSOC.

The Russian Academy of Natural Sciences, a non-governmental organization in general consultative status with ECOSOC;

The Utah China Friendship Improvement Sharing Hands & Development & Commerce, an NGO in special consultative status with ECOSOC.



Economic and Social Council

Distr.: General
30 May 2018

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2018 session

28 July 2017–27 July 2018

Agenda item 5

High-level segment

Statement submitted by Utah China Friendship Improvement Sharing Hands Development and Commerce, a non-governmental organization in consultative status with the Economic and Social Council*

The Secretary-General has received the following statement, which is being circulated in accordance with paragraphs 30 and 31 of Economic and Social Council resolution 1996/31.

* The present statement is issued without formal editing.

18-08699 (E) 140618



Please recycle



Statement

Mountain communities around the world are disproportionately affected by the challenges of globalization. They live in harsh conditions in remote areas, often at high altitudes. These factors, combined with weak access to infrastructure, as well as social, economic and political marginalization result in high levels of poverty in many mountain areas. Emerging problems such as climate change, desertification and migration are aggravating this situation. National governments and the international community can and should do more to support these communities that also are the environmental stewards of mountain regions rich in natural resources including the sources for much of the freshwater upon which humanity depends.

An estimated 39 percent of the mountain population in developing countries, some 329 million people, are considered vulnerable to food insecurity, according to a recent study of the Food and Agriculture Organization of the United Nations. Furthermore, the study revealed a 30 percent increase in the number of mountain people vulnerable to food insecurity from 2000 to 2012. This study was led by the Secretariat of the Mountain Partnership which is an alliance dedicated to improving the lives of mountain peoples and protecting mountain environments around the world. On behalf of the mountain communities, we must ensure availability of basic amenities such as food, water, a healthy environment, reliable electricity, and sanitation.

This High Level Political Forum provides an opportunity to address the challenges facing mountain communities to transform them into more sustainable and resilient societies and to bring them to the center of the 2030 Agenda for Sustainable Development. Two sustainable development goals under the review of this forum contain three mountain targets: Target 6.6: by 2020, protect and restore water related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes; Target 15.1: by 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements; Target 15.4: by 2030, ensure the conservation of mountain, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development.

We would like to report about collaborative experiences with Utah Valley University, a Mountain Partnership member since 2006, as one of the examples to transform mountain communities towards sustainable and resilient societies. Since joining the Mountain Partnership, the university encourages faculty and students to contribute to the sustainable mountain development agenda of the United Nations in the State of Utah, North America, and in developing countries globally. It allowed the university also to implement the mountain targets under the Sustainable Development Goal 4.7, which states that “By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development.”

Utah Valley University is the largest university in mountainous Utah, a state with one of the most successful models of economic development in the United States. While the United Nations encourages youth in promoting and implementing the sustainable development goals, Utah Valley University provided opportunities for inclusive involvement across campus for students, especially non-traditional, in activities related to the United Nations. Non-traditional students are described as

individuals who may have delayed enrolment into postsecondary education, attended university part-time, work full time, are financially independent, have children or dependents other than a spouse, or are single parents. These students represent more than 30% of college students within the United States. Most of them also possess a diverse set of professional skills and experiences, which they are ready, and eager to contribute to the benefit of the communities in which they reside — mountainous communities in particular. Through the developed model, Utah Valley University sources the wealth of experiences, knowledge, and financial contributions, from students to tackle environmental and social issues.

Under the engaged learning model, students gain professional skills, experiences, and proper recognition by addressing real-world sustainability problems of mountain communities at local, regional, and global levels with an instructor serving them as a mentor. The model represents a co-curricular pedagogy with the Utah International Mountain Forum, a coalition of student clubs at university that functions as a major vehicle for student group learning and implementation of the United Nations agenda that focuses on mountain targets. Creation of a coalition of clubs provides students more choices to select a club based on professional interest and to implement several initiatives in parallel.

Most recently, the members of the Foreign Affairs club and the leadership of the Utah International Mountain Forum, through engaged learning model, advocated for the sustainability of mountain women and communities at the 62nd session of the Commission on the Status of Women. During the two-year preparation, students raised funds for the visit, arranged logistics and protocol, and built ties with experts from the United Nations, representatives of diplomatic missions from mountain states accredited to the United Nations, and non-governmental organizations with consultative status with the Economic and Social Council, including three of our institutions. As a result, eleven Utah Valley University students, co-hosted a side-event titled, “Advocating for rural and mountain women globally through student engaged learning” on 19 March 2018, and a parallel event titled, “Education for sustainable development to empower rural and mountain women” on 20 March 2018. During both events, they reported on the advocacy of the mountain women since 2007, when Utah Valley University hosted the first international Women of the Mountains conference under the umbrella of the Mountain Partnership. The university hosts conferences as an implementation of the United Nations Resolution “International Year of Mountains, 2002” and a major contribution to the promotion of the gender as part of the sustainable mountain development agenda in the State of Utah and North America. The fourth and most recent international Women of the Mountains conference was hosted in Utah on 7-9 October 2015 by the club coalition Utah International Mountain Forum as a student engaged learning initiative. Members of the coalition, the majority of whom were non-traditional students, raised funds to host the event and brought to Utah diplomats, experts, and women from the mountain regions of the United States as well as from more than 20 mountain nations worldwide.

During the same time, members of the Sustainable Mountain Development club, which is also a part of the coalition, addressed the problems of a climate change and air quality in the state of Utah. Today those issues represent some of the biggest challenges for the Rocky Mountain region and Utah communities as well. According to a 2007 report by the International Panel on Climate Change, sections 4.4 and 15.2, higher elevations of the Northern Rockies have experienced three times the global average temperature increase over the past century and these very same ecosystems provide up to 85 percent of water sources for both human consumption, and fauna and flora of various ecosystems of the region. Within the Intermountain Region that comprises the state of Utah, local livelihoods experienced far more challenging

transition than other areas of the continental United States. Utah Valley University is located in a valley surrounded by mountains that rise nearly 7,000 feet above the valley in a relatively condensed area. This makes the entire region very susceptible to environmental degradation.

On 30 January 2018, the Faculty Senate for Utah Valley University passed a resolution with a commitment to achieve carbon neutrality by the year 2050 and administration is committing to hire its first sustainability coordinator arriving in Spring 2019. Those initiatives are in line with the previous activities of students on climate change in particular initiated by the Mountain Partnership. As one of the highlights, students gathered signatures under the petition to discuss the impact of climate change on mountain communities in the agenda of the United Nations Climate Change Conference, COP 21, in Paris, France, 30 November–12 December 2015. At that time, students collected more than 1,800 signatures in support of the petition of the 5,000 required by the United Nations.

The State of Utah suffers from some of the worst air quality in the nation and over the past 10 years has consistently received “F” and “D” rankings from the American Lung Association. According to their 2016 report, the Salt Lake City-Provo-Orem metro area and Logan registered the sixth and fifth-most unhealthy air days from 2012–2014 respectively. Members of the Sustainable Mountain Development club, together with a university-based student research team, are tackling the issue by examining causes and effects of poor air quality in different areas of the State of Utah for the purpose of submitting a relevant bill for the adoption during 2019 Utah State Legislative session. The team is also undertaking immediate measures such as encouraging increased use of the public transit system by the university’s students, faculty, and staff through an on-campus campaign during March–May 2018. In addition, members of the club are networking with other organizations within Utah and nationwide in an action toward implementation of similar commitments to transform local communities towards sustainable and resilient societies.

The Utah International Mountain Forum has been highlighted for the first time by the United Nations Secretary-General’s Report on sustainable mountain development [A/71/256](#), from 29 July 2016 for hosting the fourth international Women of the Mountains conference. This was indeed the acknowledgment from the United Nations, that the developed model successfully engages students in the implementation of the 2030 Agenda for Sustainable Development. As another highlight, the same report included the recommendations of the final document of the conference, which contribute to the main theme of this High Level Political Forum: “... (b) Successful implementation of target 6.6 could be achieved by supporting the vital role that women play in the protection of the environment and water sources, particularly as custodians of traditional knowledge that builds resilience and allows for adaptation to climate change; (c) With respect to target 15.1, women play a critical role in joint planning as promoters of innovation, development and cooperation for common benefit.”

We would like to highlight another important advantage of this model: since 2006, Utah Valley University students, and non-traditional ones in particular, were able to raise funds elsewhere and contribute to the overall advocacy of the sustainable mountain development agenda of the United Nations in the State of Utah, North America and globally more than US \$250,000. They did that as another example of the implementation of the United Nations Resolution “International Year of Mountains, 2002.”

The developed model of engaged learning demonstrates that students are able, and must, play in the active implementation of the 2030 development agenda of the

United Nations. Student engaged learning initiative, if used by interested universities in rural and mountainous states worldwide, could provide similar benefits both to students and in particularly non-traditional, and in addressing sustainable and environmentally conscious community development strategies for rural and mountain areas and transforming them towards sustainable and resilient societies.

Mountain Targets Implementations Through Student Engaged Learning (Oral Statement to be heard at 2018 ECOSOC High-Level Segment)

We thank Russian Academy of Natural Sciences for allowing us to speak in support of mountain communities, who are among the poorest and most-neglected globally. Climate change and migration make their living conditions even worse. An estimated 39 percent of the mountain population in developing countries, are vulnerable to food insecurity, according to a recent study of the FAO-UN and the Mountain Partnership (MP) Secretariat. During 2000-2012, there was a 30-percent increase in the number of mountain people vulnerable to food insecurity, while their population increased by only 16 percent.

Two SDGs under the review of this forum contain three mountain targets and it has to address the challenges facing mountain communities: Target 6.6: by 2020, protect and restore water related ecosystems, including mountains,; Target 15.1: by 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particularmountains and drylands.....; Target 15.4: by 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development.

As one of the examples, since 2007, the Utah Valley University (UVU), with the support of the MP, involves students, including non-traditional ones, in the implementation of mountain targets. Members of the Utah International Mountain Forum (UIMF), a UVU student clubs coalition, through an engaged learning model, gain professional skills by addressing real-world problems of mountain communities with a faculty serving them as a mentor.

UIMF members advocated already for the mountain women during the 62nd session of the Commission on the Status of Women. They reported about jointly with the Kyrgyz peers hosting the International Women of the Mountains conferences as an implementation of the UN Resolution “International Year of Mountains, 2002.” The 2016 UN Secretary-General's Report on Sustainable Mountain Development featured recommendations provided by UIMF in the latest conference document about the role women play in implementation of two mountain targets. Through the model students raised and contributed \$250,000 to the mountain targets adoption and implementation.

The model demonstrates that students are able and must play an active role in the implementation of the 2030 Agenda for Sustainable Development. It can be used by universities in rural and mountainous states worldwide to provide similar benefits to students, and to transform mountain communities towards sustainable and resilient societies.

Thank you very much for your attention



September 4, 2018

CONGRESSIONAL RECORD — Extensions of Remarks

E1189

Leonard Richardson of College Springs, Iowa on the very special occasion of their 50th wedding anniversary.

Sheryl and Leonard's lifelong commitment to each other and their family truly embodies Iowa values. As they reflect on their 50th anniversary, I hope it is filled with happy memories. May their commitment grow even stronger, as they continue to love, cherish, and honor one another for many years to come.

Mr. Speaker, I commend this great couple on their 50th year together and I wish them many more. I ask that my colleagues in the United States House of Representatives join me in congratulating them on this momentous occasion.

PERSONAL EXPLANATION

HON. SUZANNE BONAMICI

OF OREGON

IN THE HOUSE OF REPRESENTATIVES

Tuesday, September 4, 2018

Ms. BONAMICI. Mr. Speaker, I was unable to be on the House floor for the first vote on July 23, 2018, because my flight from Oregon was delayed. If I had been present I would have voted in favor of H.R. 2345, the National Suicide Hotline Improvement Act. This bill seeks to improve access to emergency services for individuals experiencing a mental health crisis by requiring the Federal Communications Commission to study the feasibility of creating a three-digit dialing code for a national suicide prevention and mental health crisis hotline system. I will continue to work with my colleagues on both sides of the aisle to make it easier for individuals to access medical care, including mental health care.

HONORING THE 100TH BIRTHDAY OF LINNIE LEONA GATEWOOD GALLUPS

HON. MIKE ROGERS

OF ALABAMA

IN THE HOUSE OF REPRESENTATIVES

Tuesday, September 4, 2018

Mr. ROGERS of Alabama. Mr. Speaker, I rise to recognize the 100th birthday of Linnie Leona Gatewood Gallups.

Leona was born on October 2, 1918. On August 8, 1937, she married Samuel Matthew Gallups.

Leona was a homemaker and cared for children, including her grandchildren and great-grandchildren, during the work day. She served as a foster parent and kept the nursery at Ladonia Baptist Church where she has been a member since 1961.

After her husband had a massive stroke, she took care of him for 15 years.

Leona loves gardening, flowers and arts and crafts. She also loves to bake cakes for others. Leona is known around town for her crafts. She spends a lot of time watching Fox News and is very fond of President Trump.

Her friends and family are surprising her with a birthday party on Sunday, September 30th at her home in Phenix City, Alabama.

Mr. Speaker, please join me in wishing Leona a very happy 100th birthday.

CELEBRATING THE OPENING OF ADIRONDACK HALL AT SUNY ADIRONDACK

HON. ELISE M. STEFANIK

OF NEW YORK

IN THE HOUSE OF REPRESENTATIVES

Tuesday, September 4, 2018

Ms. STEFANIK. Mr. Speaker, I rise today to honor and recognize SUNY Adirondack on officially opening Adirondack Hall.

SUNY Adirondack is a regional leader in education. Since its founding in 1961, SUNY Adirondack has created opportunities for growth and excellence in the North Country. Through its community-oriented mission and emphasis on workforce development, the University paves the way for students to succeed while serving the unique needs of the Adirondack community.

In support of this mission, SUNY Adirondack constructed Adirondack Hall, a new building complex that will provide modernized spaces for students to innovate and thrive as they work toward their goals for the future. Adirondack Hall will feature Business Central and the Center for Entrepreneurship, the Office of Continuing Education, the Northwest Bay Conference Center, and state-of-the-art classrooms and labs in support of science and health careers.

On behalf of New York's 21st District, I want to congratulate SUNY Adirondack on opening its new facilities. We are grateful to SUNY Adirondack for its commitment to educating the North Country community, and look forward to seeing students and faculty benefit from this new expansion for many years to come.

RECOGNIZING MEMBERS OF THE UTAH INTERNATIONAL MOUNTAIN FORUM

HON. JOHN R. CURTIS

OF UTAH

IN THE HOUSE OF REPRESENTATIVES

Tuesday, September 4, 2018

Mr. CURTIS. Mr. Speaker, I rise today to commend Samuel Elzinga, Damon Ashcraft, and Andrew Jensen, members of the Utah International Mountain Forum, a coalition of student clubs at Utah Valley University, on their recent success at the High-Level Political Forum on Sustainable Development under the auspices of the United Nations Economic and Social Council (ECOSOC) on July 19, 2018 in New York. During general debates at that global forum, they highlighted the importance of advocating for mountain communities, who are among the most impoverished and forgotten communities globally. They demonstrated student engaged learning, one of UVU's core philosophies, by planning every aspect of the trip, while Dr. Baktybek Abdrisaev, a UVU faculty member, served them as a mentor to guide them through their endeavors. Through this engaged learning model, Samuel, Andrew, and Damon engaged also such non-governmental organization registered with the ECOSOC as the Russian Academy of Natural Sciences, the Mountain Institute, and Utah China Friendship Improvement Sharing Hands

Development and Cooperation. As a result, those NGOs provided them an opportunity to make an oral and written statement, highlighting the state of Utah as a model for sustainable mountain development. Utah is consistently ranked as one of the best states for doing business and has some of the fastest growing communities in the country. I am very proud they highlighted how students are able and have to be counted as contributors to sustainable development both in Utah and mountain communities worldwide. Below is their oral statement, which was presented during ECOSOC's general debate on July 19, 2018:

MOUNTAIN TARGETS IMPLEMENTATIONS THROUGH STUDENT ENGAGED LEARNING

We thank the Russian Academy of Natural Sciences for allowing us to speak in support of mountain communities, who are among the poorest and most-neglected globally. Climate change and migration make their living conditions even worse. According to a recent study by the FAO-UN and the Mountain Partnership (MP) Secretariat, an estimated 39 percent of the mountain population in developing countries are vulnerable to food insecurity. From 2000 to 2012, there was a 30-percent increase in the number of mountain people vulnerable to food insecurity, with their population only increasing by 16 percent.

Two SDGs under the review of this forum contain three mountain targets and it must address the challenges facing mountain communities: Target 6.6: by 2020, protect and restore water related ecosystems, including mountains, . . . ; Target 15.1: by 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular . . . mountains and drylands, . . . ; Target 15.4: by 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development.

Since 2007, Utah Valley University, with the support of the Mountain Partnership, involves students, including nontraditional ones, in the implementation of mountain targets. Members of the Utah International Mountain Forum (UIMF), a coalition of student clubs at UVU, gain professional skills through an engaged learning model by addressing real-world problems of mountain communities with a faculty serving them as a mentor.

UIMF members have already advocated for the mountain women during the 62nd session of the Commission on the Status of Women. Students, jointly with their Kyrgyz peers, reported about hosting the International Women of the Mountains conferences as an implementation of the UN Resolution "International Year of Mountains, 2002." The 2016 UN Secretary-General's Report on Sustainable Mountain Development featured recommendations provided by UIMF in the latest conference document about the role women play in implementation of two mountain targets. Through the model students raised and contributed \$250,000 to the mountain targets adoption and implementation.

The model demonstrates that students are able and must play an active role in the implementation of the 2030 Agenda for Sustainable Development. It can be used by universities in rural and mountainous states worldwide to provide similar benefits to students, and to transform mountain communities towards sustainable and resilient societies.

Section 2

Different Aspects of Sustainable Mountain Development in the Rocky Mountains

A Lands-Use History of Eagle County, Colorado

By: Samuel Elzinga

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Nestled high in the central Rocky Mountains of Colorado, Eagle County stands as an example of high quality of life, pristine landscape, and superb recreation areas. Looking through the county's history, it becomes apparent that sustainability and protecting the mountains has been at the forefront of the county's cities', and its companies' policy agendas. Eagle County's establishment as a world class mountain community has not come easily, and much work has been done over many decades to ensure development not only accommodates multiple uses but protects the environment as well.

As time has progressed, Eagle County's sustainable development policy has evolved and responded to the issues and concerns facing the community. Four distinct areas of mountain development encompass Eagle County: military use, recreational use, economic use, and municipal use. Each of these categories represent a different time period in Eagle County's development and are intertwined with one another, and each have faced their own unique challenges to accomplishing their sustainable goals. Eagle County has been able to successfully transition from a mining hub in Colorado to a world class model of sustainability in mountainous communities around the globe. The paper will trace the roots of natural resource use and sustainability throughout Eagle County's history from the Native Americans who settled their to the modern day. The paper itself is not an exhaustive account of every way the land was used; it merely highlights notable use that is significant either historically or for

the development of the county. Because of the lack of historical records prior to the mid 19th century, this paper will begin in a more general sense, covering the central Rocky Mountain region in Colorado and will slowly begin to focus in on the County specifically as time goes on. Unfortunately, the first inhabitants of Eagle County did not leave behind a written record to trace their use of the land.

Early Land Use: 13,500 B.C.-1800 A.D.

Long before what was known as Eagle County, an area settled by white men, the central Rocky Mountains were inhabited by indigenous people dating back millennia.¹ Though experts cannot pinpoint an exact date when indigenous people moved into the region, archaeological evidence indicates people began inhabiting the central Rockies around 13,500 years ago.² These inhabitants lived as hunter-gatherers all across the high country of Colorado who also inhabited, from time to time, the Middle Park Basin, slightly northeast of where present-day Eagle County is located.³ A settlement was found in Vail Pass, located in eastern Eagle County, but it has been difficult determining whether the artifacts found are related to the settlements located in the Middle Park Basin.⁴

Around 1000 AD, the Ute people arrived in the southwestern United States.⁵ Beyond that, however, archaeologists have had a difficult time establishing a specific timeframe for when the Utes moved to occupy their present territory.⁶ Some of this inability to determine a timeframe comes from the difficulty of distinguishing early Ute and late Archaic artifacts due to the similar hunter-gatherer lifestyles of the Utes and the indigenous people who lived in the region before them.⁷ The first documented encounter with the Utes by westerners in central western Colorado was in 1765 during two expeditions by Juan Maria de Rivera, who conducted two expeditions into the region.⁸ A decade later, the famed Dominguez-Escalante expedition came close to the same region, and would meet the Utes of central western Colorado.⁹

Until the early nineteenth century, there were few expeditions that intentionally targeted central western Colorado as a destination.¹⁰ In the 1820's however, the fur trade rush "heralded the beginning of 'revolutionary transformation' of Ute life in the region."¹¹ Trading posts and European goods began appearing in Ute territory, and the American expansion into the West after the Mexican-American War "marked the beginning of

the end for Ute sovereignty in the region.”¹² After a series of treaties and disputes throughout the mid and late nineteenth century, the Utes were eventually pushed into reservations a fraction of the size of their original territory.¹³ The Ute’s impact on the mountain environment was nearly nonexistent. Though abundant natural resources such as natural gas, oil, gold, and coal were present, the Utes did not use these resources, save an oil seep near Cañon City, Colorado to relieve pain.¹⁴ Those who moved in after them, however, would leave a far more noticeable legacy.

Economic Exploitation of the Land: Trapping and Mining

As settlers and explorers pushed westward to explore the rest of the North American continent, the industry interests of the time followed quickly behind. As beaver became less and less common in the east, trappers made their way to Colorado in the beginning of the 1800’s.¹⁵ Skins of many different animals were sought after for domestic use, but beaver skins were particularly sought after for their value in the European markets.¹⁶ Though the Spanish traded with the Utes to acquire deer and elk furs, the new American trappers were seeking what they called fine fur: the pelts of beavers that were used for “ornamental purposes.”¹⁷ Though the beaver fur trade in Colorado only lasted from 1800 to 1840, its vigor and intensity was such that nearly caused the extinction of the beaver in Colorado.¹⁸ Though not known or considered at the time, beavers are often referred to as “keystone” species, meaning their absence from their ecosystems could have a drastic effect on the rest of the ecosystem at large.¹⁹

Thankfully, not all the beavers in Eagle County were trapped, and the beaver is currently very populous in the region.²⁰ Fur trappers moved quite frequently along rivers in the Colorado Rockies, making complete extinction of the beaver in the Eagle County Region very difficult. Unfortunately, other economic practices in the Rocky Mountains inflicted longer lasting damage to the mountain ecosystems.

Mining has been a central tenet of Colorado industry since before the state’s induction into the Union, and the Rocky Mountains still bear the scars of over 150 years of mining. The first reports of gold in Colorado came from a French trapper in 1835 named Eustace Carriere, who was separated from his trapping party and stumbled upon some gold lying as he aimlessly wandered for weeks looking for his party.²⁰ After he eventually made it back to civilization, Carriere led an unsuccessful expedition back

to where he found the gold.²¹ The small excitement surrounding the discovery of gold in the Rocky Mountains was squandered quickly when gold was discovered in California in 1849. As the California gold rush faded in excitement, the rumors of gold in the Colorado Rockies started up again, and a full-fledged gold rush began in 1858.²²

After over two decades of mining in Colorado, the gold rush finally reached Eagle County in 1879.²³ The mines, as noted by then-Eagle County resident William McCabe, were “not confined to one locality, but extend along what is known as the great carbonate belt, forty miles, embracing territory contiguous to the towns of Mitchell, Red Cliff, Gilman, Minturn and Fulford.”²⁴ Three main types of ore-producing rock formations: granite, which carries gold, silver, copper, zinc, and lead; quartz, which almost exclusively holds gold veins and the occasional amount of silver; and lime, which carries large amounts of lead, silver, iron, and small amounts of gold.²⁵ The Eagle River, Holy Cross, and Gilman mining districts became quite prosperous, and earned roughly 28 million dollars by 1923.²⁶ Mines in the Eagle County area began extracting and selling zinc in 1905 and quickly became Colorado’s largest zinc producer, extracting around 115 million pounds of the element in that same amount of time. One mine in Eagle County, the Eagle Mine located near the city of Gilman, continued its massive zinc extraction operations until 1979 and other metal extraction continued for another five years.²⁷

The zinc operation at the Eagle Mine did not come without its share of negative consequences. The Colorado State government filed a claim against the owners of the Eagle Mine for natural resource damage under the Superfund Law in 1983, which required the owners of the mine to clean up the environmental damage the mine caused.^{28,29} This lawsuit led the closure of the mine and the abandonment of the nearby town of Gilman because the environmental damage was so extensive. The cleanup process was tackled by the Environmental Protection Agency (EPA) as well as a consent decree and remedial action plan (CD/RAP) between the mine owners and the State of Colorado to “implement cleanup activities at the site.”³⁰ The cleanup process was completed in two phases, the first phase spanning from 1986 to 2001 and the second phase spanning 2008 to the present day.³¹

The CD/RAP outlined a specific three step plan to improve the quality of the Eagle Mine area and to prioritize the cleanup of the most af-

fectured areas.³² Horizontal openings leading into the mine, known as adits, were plugged from 1986 to 1990 to stop the flow of polluted mine water into the nearby Eagle River. Because the adits were plugged, the mine began to fill with water. “The theory behind mine flooding,” according to a report filed by the EPA, “was to limit the rocks’ exposure to oxygen, thereby reducing acid generation and the amount of metals dissolved from the mine workings,” decreasing the amount of pollutants in the water.³⁵ Unfortunately, the water in the mine began to seep into fractures in the mountains.³⁶ Because of this development, all the water from the mine, as well as surface water surrounding the tailing pipes is being collected and sent to a water treatment plant.³⁷

The next natural step in mitigating the environmental damage at the Eagle Mine was to collect and treat contaminated water coming from the mine and its surrounding area. The treatment plant was established in 1990, and its main purpose was to “treat water collected from the mine, groundwater beneath the Consolidated Tailings Pile, and contaminated surface and groundwater collected from multiple locations across the site.”³⁸ The final and main aspect of the CD/RAP agreement cleanup was the relocation and consolidated collection of onsite tailings.³⁹ Mine tailings are materials left over from ore processing and are toxic to the environment.⁴⁰ Mine tailings were the main reason the Eagle Mine was declared a superfund site, so it is natural the bulk of the cleanup agreement was focused on this issue. There were multiple tailings piles at the Eagle Mine, and these piles were consolidated into one larger pile called the Consolidated Tailings Pile.⁴¹ The tailings came from three distinct tailings piles: The New Tailings Pile, the newest and largest tailings pile; the Old Tailings pile, the oldest tailings pile; and the Rex Flats Tailings pile.⁴² Tailings were brought from five other ore roasting piles as well.⁴³ Almost one million tons of tailings were consolidated from the Old Tailings Pile, and the former site was “covered with clean fill material and revegetated with native grasses.”⁴⁴ The new tailings pile was millions of tons and very large, and to ensure it was isolated from “precipitation, air and direct human contact,” the Consolidated Tailings Pile was covered with a multi-layered engineer’s cap and covered in native vegetation.⁴⁵

The Private cleanup was a great first step to help restore the Eagle Mine location to a more workable state, but more work still had to be done. Other concerns raised by the EPA included the adverse effects the mining had in the surrounding ecosystems and communities. Heavy metal

particulates from the mine seeped into the local waterways, damaging waterways downstream from the mine as well as contaminating water used by the local town of Minturn.⁴⁶ Airborne particles from the newly formed Consolidated Tailings Pile caused some concern based on the pile's location near Minturn Middle School as well.⁴⁷ Finally, contamination from the mine was destroying the nearby Maloit Park wetlands area, which the EPA hoped to mitigate. In the EPA's report about the Eagle Mine Superfund Site, cleanup Gilman, the abandoned town near the Eagle Mine, was considered, though substantial amounts of heavy metals were found in the soil, making redevelopment harder than previously imagined.⁴⁸

To conquer these problems, the EPA established three Operational Units, otherwise known as OUs. The first OU was designed to move heavy metals from the source of the mine waste affecting the Eagle River's water quality.⁴⁹ Eventually, the first OU focused mainly on protecting surface water from contamination by "preventing metals loading into the Eagle River."⁵⁰ The second OU was designed to "evaluate health risks at Maloit Park Wetlands, the Minturn Middle School and the abandoned company town of Gilman."⁵¹ Currently, the second OU revolves around evaluating the health risks of Gilman.⁵² OU three was established in the early 2000s and almost exclusively dealt with the potential redevelopment of Gilman.⁵³ Currently, OU three is tasked with mitigating human health risks in Gilman by reducing soil contamination.⁵⁴

Through a collaborative effort between the private mine companies, the state government, and the EPA, the Eagle Mine has continued to go through a vigorous cleanup process to restore the land to its original state, or as close as it can get. As the economy shifted from a primarily industry and natural resources-based community to a more commercial and recreational industry, more scrutiny was given to how the precious mountain land was being used. Were it not for the 10th Mountain Division stationed at Camp Hale, skiing might not have taken off in the west, making Eagle County's development into the community how it is today, very different.

Camp Hale: Military Use and Development in the Region

Camp Hale was the premier mountain warfare training facility in World War II.⁵⁵ It was constructed solely to train infantry units in mountain combat and provided high elevation training in alpine and Nordic

skiing, rock climbing, cold weather survival techniques, and explosives training.⁵⁶ The creation of Camp Hale was inspired by the success of Finnish troops against Soviet forces in 1939 and was successfully lobbied for by National Ski Patrol Association.⁵⁷ In November of 1941, the federal government created the Mountain Winter Warfare Board to “test winter equipment and transportation,” while the War Department designated the 1st Battalion and 87th Mountain Infantry Regiment as the nation’s first mountain battalion.⁵⁸ The National Ski patrol remained in close contact with the federal government and trained the new volunteers in the mountain battalion how to ski.⁵⁹

Initially the new battalion was stationed in Camp Carson, located in Colorado Springs.⁶⁰ The search for a new location went underway rather quickly, as Colorado Springs did not have the desired features to adequately train mountain soldiers. After a national search, the ideal location was found: a site just outside of Leadville, Colorado. This site offered everything the mountain soldiers needed: mountains to practice skiing, rock faces to practice rock climbing, cold weather for winter survival, and altitude. These characteristics were ideal, and construction of the camp began shortly after. It would be named Camp Hale, and it was the center of mountain warfare training in the United States from 1942 to 1945.⁶¹ After its closure as a military training site, Camp Hale was used for a variety of functions, including the training of some Tibetan groups to attempt to take on the communist regime in China.⁶² In 1965, the site was turned over to the U.S. Forest service, who still takes care of the land today, and a local nonprofit in Eagle County uses the site to help disadvantaged youth learn about and experience some of the training members from the 10th Mountain Division did.⁶³

While the formation of the 10th Mountain Division and the construction of Camp Hale was integral in the establishment of a mountain warfare program in the United States, concerns still remain in regard to how the land was used during the period of military occupation. One main concern was unexploded munitions left by training exercises during its time as a military camp. According to a report by the Colorado Department of Public Health and Environment, both practice and live munitions were used, and ten percent of all live munitions used at the camp ended up being duds.⁶⁴ These unexploded munitions pose a hazard to those using the land as they are still extremely dangerous.⁶⁵ As dangerous as the unexploded munitions are, programs are set in place to help mitigate risks

posed to people recreating in the Camp Hale Area.

Four agencies are responsible for the response and cleanup of unexploded munitions at Camp Hale: The Army Corps of Engineers (Omaha District) conducts the primary environmental cleanup of Camp Hale, The U.S. Forest Service owns Camp Hale currently and helps manage cleanup efforts, the Colorado Department of Public Health and Environment ensures all state laws and regulations are followed, and the EPA ensures all federal laws and regulations are followed.⁶⁶ The munitions removal is a continuous process, and it seems that no end is in site for the complete removal of all munitions at this time. To continually manage any potential dangers that might arise, the Colorado Department of Public Health and Environment and the Army Corps of Engineers developed an interim risk management plan (IRMP).⁶⁷ The IRMP's objective is to "enhance public safety by effectively managing potential risks from exposure to military munitions and explosives of concern until remedial actions are completed."⁶⁸ The plan has four major components: (1) Identify locations and activities that require risk management, (2) inform people using the land of the potential to encounter munitions, (3) Instruct those using the land on how to react if munitions are discovered, and (4) ensure a formal process is in place to deal with any munitions found.⁶⁹

While Camp Hale's environmental legacy in Eagle County is not nearly as extensive as previously mentioned economic endeavors, its vestiges continue to pose potential problems and conflicts for future development of the land. When Camp Hale was initially built, the Army made numerous alterations to the landscape. First, the wetland meadow known as Eagle Park was drained and millions of cubic yards of fill were brought in to provide level ground for development.⁷⁰ The Eagle River was then channelized, meaning its meandering path through Eagle Park was altered to a more linear path. This alteration changed the surrounding wetlands to become dryer, changing the environment.⁷¹ To add to these problems, the banks of the channelized stream have steepened, reducing the amount of water that is allowed to spill out onto the floodplain.⁷² To help mitigate these negative effects of the channelization, some have proposed the expansion of three reservoirs upstream of the channel, potentially supplying the ecosystem with more water as well as providing more water to the communities with water rights on the stream.⁷³ Another proposal was to restore the stream, though large financial obstacles are currently preventing this project from moving forward.⁷⁴

Many interests are at play surrounding Camp Hale's future, specifically around the environmental and water quality of the site. There are veterans and family members from the 10th Mountain Division who want to highlight the history of the area and do not want significant alterations to the land as it would "alter important physical traits that depict the site's history."⁷⁵ There are also water providers interested in the land, as they want to "develop infrastructure required to ensure adequate water supplies for future consumptive and non-consumptive uses."⁷⁶ Outdoor enthusiasts are interested in increasing recreation facilities in the area, and many wildlife experts at both the state and federal levels wish to return the site to more ecologically friendly conditions.⁷⁷ With so many interests at play, it is difficult for policymakers to determine what to do. A discussion about sustainable development policy in Eagle County would not be complete without a discussion on Camp Hale, and more importantly, the impact it had on those who trained there. Were it not for the men of the 10th Mountain Division and their found love of skiing, Eagle County would look vastly different today.

Recreational Use Post WWII: The Ski Resort Boom

The 10th Mountain Division did not see combat until the end of World War 2, though it was founded in 1942.⁷⁸ "This meant volunteers were training up at Camp Hale for nearly three years with nothing else to do in their free time except talk about what they were going to do once the war was over," as Major Kerry Davis of the Colorado National Guard remarked.⁷⁹ When the members of the 10th Mountain Division returned home, many returned to the mountains to continue skiing. Around 2,000 veterans from the 10th mountain division were employed in some skiing-related profession and would open around 60 ski resorts.⁸⁰ One veteran in particular from the 10th Mountain Division pioneered recreational skiing in Eagle County, drawing on his experiences in the mountains around Camp Hale to establish the county's first recreational ski resort.

Sgt. Pete Seibert was born on August 7th, 1924 in Sharon Massachusetts.⁸¹ He skied when he was growing up and jumped at the chance to join the 10th Mountain Division.⁸² He saw some combat in World War 2 and was wounded in a mortar blast at the battle of Riva Ridge that sent him back home to heal from his injuries.⁸³ After the war and his subsequent recuperation, Mr. Seibert returned to Colorado to regain his skiing abili-

ties.⁸⁴ Mr. Seibert continued to practice his skiing while working for the Aspen Ski Patrol, and became skilled enough to earn the Roch Cup and gain membership on the U.S. Ski Team.⁸⁵ Then in 1957, Seibert, led by his friend and local uranium prospector Earl Eaton, scaled a then-unnamed mountain with the hope of building a world-class ski resort.⁸⁶ When the duo reached the peak of this unnamed mountain, Seibert exclaimed “My God, Earl, we’ve climbed all the way to heaven.”⁸⁷ After securing enough investors to purchase land permits from the U.S. Forest Service in 1962, Vail Ski Resort was officially opened, and the economy of Eagle County changed forever.⁸⁸

After the successful establishment of Vail, tourism quickly became a dominant industry in Eagle County. One study prepared for the Northwest Colorado Council of Governments reports that 50% of all employed people in Eagle County work in the tourism industry.⁸⁹ The ski resorts have developed a close relationship with the U.S. Forest Service to ensure the commercial needs of the ski resorts are heard, as any significant economic hardship suffered by these resorts will subsequently impact the local economy.

As with many other ski resorts around the country, the resorts in Eagle County rent the land they use from the Forest Service.⁹⁰ The fee, according to the Forest Service, is “based on its income derived from use of the public lands,” and goes directly to the federal treasury.⁹¹ Each ski resort is also required to make and enact a Master Development Plan (MDP) to “identify the existing and desired conditions for the ski area and the proposed improvements on the National Forest System lands within the permit boundary.”⁹² These plans help ensure the long term goals of the lands being used are taken into account as well as accounting for any future use that might occur.⁹³ Vail Ski Resort’s MDP consists of seven different parts, each reporting and addressing different aspects of development on the land Vail rents.⁹⁴ Beaver Creek, another ski resort located in Eagle County, has an MDP as well that has five different parts that report on issues and situations unique to Beaver Creek.⁹⁵ It is important to note, however, that just because an MDP has been proposed the resort will automatically be authorized to enact the development changes proposed.⁹⁶ An in depth review of the proposed changes are conducted to ensure the goals and development proposed complements the long term goals of the Forest Service.⁹⁷

This cooperation between the Forest Service and private businesses has seemed to work, as there have been no large clashes between the two entities. However, some politicians think certain parts of the arrangement. Representative Scott Titpon (CO-3), the Congressman who represents the majority of Eagle County in the House of Representatives, supported the Recreation No Red-Tape Act which would rearrange how funds collected from the site would be used.⁹⁸ Specifically, the bill would allow the revenue collected by the Forest Service to be invested into the areas used for ski resorts.⁹⁹ Under the Federal Lands Recreation Act, the revenue collected from recreation on public lands is invested back into the land where the revenue was collected.¹⁰⁰ Unfortunately, ski areas are not included in this bill, meaning the revenue collected from them goes to the federal treasury.¹⁰¹ Under the Recreation No Red-Tape Act, up to 65% of the revenue generated by the Forest Service from the ski resorts will go back to develop the land the resort lies on.¹⁰¹ This potentially helpful bill will allow the Forest Service to properly maintain some of its most delicate ecosystems as well as promote further economic development in mountainous regions heavily reliant on outdoor recreation, like Eagle County. Currently, the bill has not come to a vote on the floor and currently still sits in committee.

The relationship between the resorts in Eagle County and the owners of the land they reside on has grown to be quite complex over the past few years. As the resorts continue to grow, larger and more complex sustainability issues will arise surrounding these industries. In anticipation of the increasingly complex ecological challenges the company might face, Vail Resorts has developed 5 areas of focus to enhance the company's sustainability efforts: reducing emissions, landfill, and land impact to 0; limiting water usage; using as many recycled materials as possible; reducing reliance on fossil fuels; and properly manage their use of public lands.¹⁰² Recreational land use in Eagle County is heading in the right direction, and as time goes by, recreational use of the land will continue to be more and more sustainable.

Modern Sustainability Policies

As Eagle County has progressed into the modern era, its local environmental policies began to reflect a greater sensitivity to the sustainability issues the county and towns faced. As the population of permanent residents and the increasing interest in the county as a recreation destina-

tion, local leaders recognized the need to ensure the environment was protected for years to come, ensuring Eagle County would be able to retain its tourism and service-driven economy.¹⁰³ County leaders are working to accomplish their sustainability goals in a variety of ways, ranging from direct environmental policies to allowing local cities and towns to create their own sustainability plans.

At the county level, the Eagle County Commissioners established a Sustainable Communities Department to focus specifically on climate action, environmental sustainability, and forest health.¹⁰⁴ When asked about the new department's focus in an interview, director Adam Palmer said, "Our primary focus areas include managing internal cost-saving measures through goals outlined in our Environmental Policy, as well as working with the community to implement the Climate Action Plan. The impacts of a warmer climate are detrimental to winter recreation-based mountain communities like ours, and the time for transformative action is now."¹⁰⁵

To coincide with the primary focus of the department, the County also issued a goal of reducing local gas emissions and energy costs by 50 percent by 2030. While this goal may seem lofty, the County has made strides towards this accomplishment. According to the Vail Daily, the local newspaper, "investments in energy efficiency and solar energy [in the county] have reduced electricity costs and emissions by 60 percent."¹⁰⁶ To add to these positive effects, other developments in sustainability technologies like fuel-efficient vehicles and improved solar technology will help the county reach this goal in no time.¹⁰⁷ Eventually, the county has developed even more specific policy goals in mind, and these are articulated in the County's Climate Action Plan.¹⁰⁸

Eagle County's Climate Action Plan was established in 2016 to better establish the county's sustainability policies.¹⁰⁹ There are six areas of recommendation in the Climate Action Plan ranging from transportation to education.¹¹⁰ These six areas of recommendations tackle emissions, clean energy, and increasing awareness about the sustainability challenges facing the county. The Plan recognizes that their mountain community is in danger if current unsustainable practices continue, so there is emphasis on adherence to the suggestions in the plan.¹¹⁰ A new benchmark is added in the plan too, which aims at reducing emissions by 25 percent by 2025 and by 80 percent by 2050.¹¹¹ If Eagle County adheres to the advice

given in the Climate Action Plan, the county will be able to reach their sustainability goals easily. The accomplishment of the sustainability goals would not be possible without the compliance and cooperation of local towns, however, and many are answering the call to sustainability.

One such town answering this call is Vail. As it is home to one of the two ski resorts in the county, it has a particular interest in ensuring these sustainability goals are reached to protect the fragile mountain environment. Vail recognized the potential sustainability challenges its community faced early on, and formally established a sustainability department in 2009 to confront the sustainability questions head on.¹¹² Before 2009, there was no formal organization in Vail to help solve local sustainability questions and some local officials loosely handled the issues.¹¹³ Since then, Vail has developed robust sustainability policies that have earned it the title of best sustainable destination in 2018.¹¹⁴

The town of Vail takes a rather interesting approach to conducting its sustainability agenda. Small local changes are at the core of this approach, and many of its policies center around individual lifestyle changes. For example, in an interview with Kristen Bertuglia, Vail's sustainability director, she noted that "it is against the law not to recycle."¹¹⁵ Other local policies like banning plastic bag from grocery stores and a potential ban on plastic water bottles also help contribute to Vail's sustainability mission.¹¹⁶ Other sustainability changes happen in Vail at a slightly larger scale and coincide with the county's Climate Action Plan. For example, Vail has plans to reduce 20 percent of its emissions by 2020 and 25 percent by 2025, lining up with the county's goals as well.¹¹⁷ Vail also intends to electrify its bus system, aligning with the county's policy of finding cleaner alternative technology for cars and buses.¹¹⁸ While Vail may be mandated at the county level to enact these sustainable policies, there is no sign they are doing so begrudgingly. The town has run with the sustainability initiative and is continuing to do so. The sustainability department is currently hoping to implement a new 9-million-dollar project to help restore the Gore Creek's macroinvertebrate population to ultimately help restore the creek's natural ecosystem.¹¹⁹ Vail, along with the rest of Eagle County, have established themselves as thoughtful stewards of the land they use, and as their sustainability policies continue to unfold, more counties like Eagle County and more towns like Vail will look to them as a model of sustainability and economic development.

Looking to the Future

From the earliest indigenous people to pass through the area to the modern towns that so many seek out to ski in, Eagle County has gone through many phases of development. Its development into the county it is today would not have been possible without the many different industries and people inhabiting the land. For example, the military's use of the land in World War 2 ultimately led Pete Seibert to return to Colorado and bring skiing to the general population and the West. Were it not for the gold rush in the 19th century, the area might have remained uninhabited for a much longer time. Each era of mountain development in Eagle County was absolutely integral for the next era to begin, allowing local and state leaders to address the problems previously faced by the county to further develop the sustainable policies that define Eagle County. As other regions in the United States have been slow to take the initiative on restoring their mountain environment from past unsustainable development, local and state leaders attacked the issues head on and have been able to make quick and astonishing recovery. From a county that had a mine so toxic it caused the abandonment of a town and required its addition to the national list of superfund sites to being a model of sustainability for the rest of the country, Eagle County has gone through an immense change. As sustainability and natural resource use becomes a more heated discussion in America, Eagle County will be able to stand as the shining city on a hill for sustainable development. Though the county itself has a long path to complete and obtain total sustainability, Eagle County is one of the best models of sustainable mountain development in the Rocky Mountain Region.

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Utah: A Leader in Sustainable Local and International Humanitarianism

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Taylor Bell is from southern Salt Lake County. He is studying Political Science with an emphasis in Public Law and Political Philosophy at Utah Valley University. Taylor became passionate about international development and humanitarianism following his time serving as a missionary for his church in Ecuador. In the non-profit sector, his work has included initiatives focusing on clean water, hygiene, women empowerment and developmental education in the countries of Nepal, Peru and Belize. Taylor hopes to continue his work in this field in Taylor currently acts as Chief Justice and chairs the Judicial Council within UVU's Student Association (UVUSA). He has also served on the Academic Senate in UVUSA. Taylor is a member of the UVU's Sustainability Committee that strives for a more sustainable campus. Taylor works as a Presidential Intern at UVU, in this capacity he aids the President's Executive Team with the execution of high impact projects, initiatives and research. Taylor hopes to be a contributor in his community by helping the UN reach its Sustainable Development Goals.

Abstract

This paper discusses the correlation between the Sustainable Development Goals established by the United Nations and humanitarian efforts that originate from the state of Utah. Although there are numerous Utah based non-profit organizations that strive to provide humanitarian relief, the focus will be around the efforts of LDS Charities: the humanitarian branch of The Church of Jesus Christ of Latter-day Saints headquartered in Salt Lake City. LDS Charities directs its efforts on food, clean water, community projects, emergency response, immunizations, maternal and newborn care, refugee response, vision care and wheelchair initiatives. This information is being gathered to better expound on why Salt Lake City is a suitable location to host the UN DPI/NGO conference in the summer of 2019.

In August of 2019, Salt Lake City will be hosting the 68th United Nations Department of Public Information (DPI)/Non-Governmental Organization (NGO) Conference, the first time in history that the United Na-

tions will meet on American soil outside of New York City. Salt Lake City is a great location to hold such a conference as it is just 40 miles north of Utah Valley University, a public university that recently became an Associate Member of the United Nations Department of Public Information in November of 2017. Salt Lake City also is aiming to reduce its carbon output by 80% in 2024 and use 100% clean energy by 2032, goals that are in harmony with the Sustainable Development Goals set up by the United Nations in 2015. These are not the only reasons Salt Lake City should be considered an appropriate place to host the United Nations. (Salt Lake City selected to host 2019 United Nations NGO Conference, 2018)

Utah is home to various non-profit organizations that provide local and international humanitarian aid through initiatives that provide the impoverished with food, clean water, education, various medical resources such as immunizations, maternal/newborn care, wheelchairs, and optometry. The purpose of humanitarian work is to improve and benefit the current emotional, mental, physical and economic state of a human being focusing especially on those who lack the basic necessities of food, water, clothing and shelter. The humanitarian aid that comes as a result of Utah organizations such as LDS Charities, the International Rescue Committee and other groups, focus on helping provide people the resources they need to become self-sufficient and sustainable. It is important that people are able to become reliant on skills and abilities they have, over simply receiving aid.

United Nations

The United Nations (UN) was founded following World War II in an effort to repair and rebuild Europe where it had been destroyed by the war. Since its founding, the United Nations has remained ever present in the international realm in an effort to maintain world peace and security. The main goals of the United Nations are to Maintain International Peace and Security, Protect Human Rights, Deliver Humanitarian Aid, Promote Sustainable Development and Uphold International Law (What We Do, 2018). In 2015, in harmony with these efforts, the United Nations created seventeen Sustainable Development Goals; goals intended to hone in on key global issues that would become the primary foci for the upcoming fifteen years. The goals include:

Goal 1. End poverty in all its forms everywhere

- Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3. Ensure healthy lives and promote well-being for all at all ages
- Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5. Achieve gender equality and empower all women and girls
- Goal 6. Ensure availability and sustainable management of water and sanitation for all
- Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 10. Reduce inequality within and among countries
- Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12. Ensure sustainable consumption and production patterns
- Goal 13. Take urgent action to combat climate change and its impacts*
- Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development (Transforming our world: the 2030 Agenda for Sustainable Development, Our Vision, 2015)

In their official statement in regards to the Sustainable Development Goals, the United Nations stated:

In these Goals and targets, we are setting out a supremely ambitious and transformational vision. We envisage a world free of poverty, hunger, disease and want, where all life can thrive. We envisage a world free of fear and violence. A world with universal literacy. A world with equitable and universal access to quality education at all levels, to

health care and social protection, where physical, mental and social well-being are assured. A world where we reaffirm our commitments regarding the human right to safe drinking water and sanitation and where there is improved hygiene; and where food is sufficient, safe, affordable and nutritious. A world where human habitats are safe, resilient and sustainable and where there is universal access to affordable, reliable and sustainable energy. (Transforming our world: the 2030 Agenda for Sustainable Development, Our Vision, 2015)

The Sustainable Development Goals (SDGs) focus on issues and concerns that if not addressed will have a detrimental effect on humanity, more than the toll it has already taken. These goals and the official statement given by the UN are critical as they affirm basic human rights that the nation states of the world should strive to ensure for all humans, regardless of race, gender, ethnicity and socioeconomic class. Rights that are often available to a privileged few, allowing them greater opportunity for a successful and better outlook on life. As the United Nations and other organizations strive to complete the SDGs the global population will be more apt to deal with the changing climate and developing world.

“The Church of Jesus Christ of Latter-day Saints (LDS), engages in a wide range of charitable activity. This religious group is relatively small, with approximately 14 million (Now more than 16 million) members (about half of whom live in the United States and about half of whom live outside the United States). Yet it is strongly committed to humanitarian work and as such marshals considerable resources to that end. One hundred percent of these donations go directly to help those in need” (Scharffs 2009).

Due to this global reach, LDS Charities is able to coordinate a great deal of its humanitarian work through the leaders of its various congregations. 100% of humanitarian funds collected by LDS Charities go toward project expenses, the Church pays any overhead costs in full. The monetary donations that fund LDS Charities come from members of The Church of Jesus Christ of Latter-day Saints and others who wish to donate. Their funds do not come from corporations or grants. LDS Charities defines needs and develops projects in accordance with their mission: to help others as God would have them do, serve all races, nationalities and religions, promote volunteerism, provide emergency assistance, relieve suffering, support programs that meet specific needs, encourage self-reli-

ance, service and sustainability and encourage beneficiaries to participate. LDS Charities often partners with global and local organizations. They actively strive to work alongside local groups as they better understand the unique needs that face their communities. LDS Charities also focuses on engaging local communities to volunteer with their relief efforts as it reduces the time and cost needed to meet altering needs (LDS Charities, 2018)

The signature programs of LDS Charities include: Benson Food: a program set to improve the health and well-being of families through food production, food storage, and nutrition training. Clean Water: efforts set to provide clean water sources, improved sanitation facilities and proper hygiene training. Community Projects: a program set to support local groups efforts to improve issues specific to their region. Emergency Response: efforts set to relieve suffering due to civil unrest, natural disasters or famine. Immunization: improved access to immunization services, especially to children, reducing the numbers of lives lost to various preventable diseases. Maternal and Newborn Care: efforts that provide training and equipment to aid in maternal and child survival following birth. Refugee Response: support offered to refugees or displaced persons across the globe. Vision Care: a program set to better train existing eye care specialist in developing countries, along with providing needed equipment to prevent avoidable blindness and visual impairment. Wheelchairs: efforts set to improve the mobility, health and educational opportunities to those with physical disabilities (LDS Charities, 2018)

The efforts of LDS Charities focus on providing people across the world with the resources and opportunities they need to overcome the setbacks they may face and ways in which they can be better educated to avoid those setbacks from occurring again. This is possible through the way in which LDS Charities chooses to enact its humanitarian efforts. This form of aid and pedagogy contribute to the culture of Sustainable Development that the United Nations is striving to reach by 2030. Since 1985, LDS Charities has provided assistance to millions of people in 189 countries (LDS Charities About Us, 2018)

LDS Charities in Partnership with the United Nations

LDS Charities is an official Non-Governmental Organization (NGO) of the United Nations. The relationship between to the two groups

began in the early 2000s as the church's humanitarian representatives recommended church leadership donate funding to aid in immunization and vaccine efforts across the globe; these efforts were targeted towards children specifically. Through these efforts many women and children were provided the relief of aid needed to survive disease and illness. (Church's Humanitarian Efforts Making a Difference Worldwide, 2013)

LDS Charities became involved in United Nation efforts in New York City in 2014 as they presented on "Discovering Mormonism and Its Role in Humanitarian Aid" as part of the Focus on Faith series put on by the Department of Public Information within the UN. A panel moderator said about the Focus on Faith series:

"This series aims to provide a broader understanding of how different belief systems share common foundational principles such as tolerance, mutual respect for those different than ourselves, and a commitment to reconciliation and peaceful resolutions to disputes."

(LDS Charities Featured during United Nations Event, 2014)

In the global realm, it is crucial that nation states and world-wide organizations have common goals in bettering the world in which we live. The United Nations is a key player in the success and execution of initiatives that will help the world continue to improve. The United Nations has had the Millennium Development Goals, and now the Sustainable Development Goals targeted at improving the lives of global citizens. Communication is a vital part of the success of such initiatives as it helps bridge gaps and differences between cultures.

LDS Charities is a member of The Survive and Thrive Global Development Alliance. A partnership within the United Nations that focuses on improving the maternal and neonatal experience by providing the necessary training and equipment to ensure healthy mothers and babies. This initiative alone focuses on four of the seventeen Sustainable Development Goals, these goals include Zero Hunger, Good Health and Well-being, Quality Education and Partnerships for the Goals. LDS Charities is making great collaborative efforts to ensure success to the UN's goals.

LDS Charities has also played a valuable role in the UN's Commission on the Status of Women. They have hosted various events focusing on providing women the resources they need to be successful. It is often

the case that women across the world have very limited access to resources that would improve their quality of life. The issues they can face are often due to poverty, physical limitations, violence or sexism. LDS Charities hopes to limit and break down barriers that women have to face and shed light on the fact that violence toward women is not only physical, but that it can be structural as well. Sharon Eubank, the Director of LDS Charities, stated:

“If women don’t have access to health care because the roads are too dangerous, if they are turned away from care because they are too poor or too disabled, if there is no equipment to save their newborn, if no one believes girls need wheelchairs — they are bullied by a societal structure that is so much bigger and meaner than they have power to fight,” (Weaver, 2013)

LDS Charities has been a leader within in the United Nations by contributing to the humanitarian aid being brought to those in need across the globe. They have been advocates of the Sustainable Development Goals and work hard to ensure that basic human needs are met. Their partnership and work as a NGO of the Department of Public Information, has been essential to the aid that is seen throughout continents and nations.

Utah: Sustainable Development Goals, Signature Programs and Local Efforts

Utah is home to various groups that strive to support and help people receive their basic needs of food, clear water, basic health care practices, shelter and refugee aid. The Church of Jesus Christ of Latter-day Saints is the biggest contributor to local and international aid sourced from the state of Utah. Humanitarian Funds donated through LDS Charities provide assistance to foreign countries and the United States in time of natural disasters. These funds also go towards other initiatives as well. The Church of Jesus Christ of Latter-day Saints also has methods in which members of the church can donate funds that will aid families and individuals directly in their community.

Food and Nutrition

Food is a basic need of human life, without constant nourishment

it easy for humans to become ill; if they do not gain access to food they can die of starvation. The Second Sustainable Development Goal of the UN is to end hunger, achieve food security and improve nutrition and promote sustainable agriculture. To ensure access by all people, particularly the poor, people in vulnerable situations and infants, to safe, nutritious, and sufficient food all year round.

Benson Food is the branch of LDS Charities that focuses on improving the health and well-being of families. Their projects are centered around food production, food storage and nutrition training with the goal to teach sustainable practices that will aid in greater food security. Benson Food helps people understand what practices are most appropriate for the environment in which they live, focusing on what plants and animals can be grown in one's geographical area. People also receive training explaining the nutritional value that many food sources provide as well as assistance in understanding which food choices will be best for their lifestyle or needs. Natural disasters are often unpredictable and limit the food that people have access to following the disaster; the LDS church, through LDS Charities, helps educate people on the importance of food storage practices (Benson Food, 2018). In LDS Charities Annual Report, Benson Food has aided 31 countries and territories since 2006 and 196,000 people in 14 countries during 2017 (2017 LDS Charities Annual Report, 2018). The education of sustainable food security practices helps to reduce poverty and hunger contributing to the success of the United Nations Second Sustainable Development Goal of Zero Hunger.

The Church of Jesus Christ of Latter-day Saints also provides local aid through another donation and offering service called a Fast Offering. These offerings are donated after a member of the Church has fasted: the abstaining of food and water for a period of time usually a period of two meals or 24 hours. This donation then goes to helping local community members in financial need to have the funds to pay rent, purchase groceries or clothing. Fast-Offering serves as another example of how Utah has made great strides by focusing various efforts and ensuring that people, especially children, have access to food; healthy and nutritious foods in specific.

Clean Water and Sanitation

Clean and sanitary water is one of the most important human

needs and sits at the very core of sustainable development. Water is crucial to human survival. “In 2015, 91 percent of the of the global population used an improved drinking water source, versus 82 percent in 2000” (Goal 6, 2018). This is truly an impressive feat, especially considering the United Nations has a goal to achieve universal and equitable access to safe and affordable drinking water to all people.

LDS Charities, in their 2017 Annual Report, had assisted 76 countries and territories since 2002 and 514,000 people in 25 countries gain access to clean water sources. “LDS Charities collaborates with communities, local governments, and partner organizations such as Water For People, WaterAid, and Catholic Relief Services to establish sustainable water systems. LDS Charities and their partners also provide training to families about improved hygiene as well as water system maintenance and operation. Through these efforts, communities are empowered to meet their long-term water needs.” (2017 LDS Charities Annual Report, 2018). Something that is very admirable about the general approach of LDS Charities is their desire and efforts to collaborate with local groups, or other NGOs that are already working to accomplish similar initiatives.

In 2011, Students from Brigham Young University, a university located in Provo, Utah, developed mechanism that would grant greater access to water for people in Tanzania. This team of engineering students were able to invent a low cost, hand powered drill capable of digging underground wells. This drill only required four people to operate and is a fairly user-friendly form of water retrieval (BYU students build drill for finding ground water, 2011). Although this project did not quite have the global implications and reach of LDS Charities, it shows that Utahans are striving to contribute to the cause of getting people access to basic human necessities.

Community Projects

Community Projects are unique as they vary greatly according to location. These projects often focus on providing children and youth access to resources to better their education. These projects can include initiatives to get students access to computers and the internet. Sustainable Development Goal 4 focuses on providing opportunities for global citizens to have equitable access to education. By 2030, it will be ensured that boys and girls alike have had completed free and equitable primary

and secondary education. They will also have equitable access to continue their education in a university or technical school at an affordable rate. Community projects focus heavily on education, but are not limited solely to it.

“Community relations for our organization includes encouraging our members, families and church groups to be actively involved with other faiths and community organizations on humanitarian service projects and selected social issues. Establishing good communication with key community leaders in government, business, education, etc. is also included. Community relations activities emphasize developing feelings of goodwill throughout the community.” (Developing a Non-Profit Public Relations Network, 1992)

Community Projects exists to be flexible to the needs of the community. This could be helping others gain access to the needed resources to further education, or be organizing groups of people to help with local service initiatives. LDS Charities has aided 173 countries and territories since 2001 and completed 1,868 projects in 103 countries during 2017.

Health and Well-being

General health and well-being are important when striving to improve the quality of life of individuals. Improving health and well being can be done in various ways. LDS Charities focuses its effort on emergency response, immunizations, maternal and newborn care, vision care and wheelchair/walking aids. Sustainable Development Goal 3 helps to ensure healthy lives and promote wellbeing for all regardless of age. This goal encompasses a vast group of targets and initiatives to be worked on including but not limited to: the reduction of maternal and infant mortality rate during childbirth, spreading awareness and prevent the transition of AIDs and other STIs, lessening of deaths due to automobiles, early warning and risk reduction for global crisis as well as basic health needs such as immunizations, eye care and disability services.

Emergency Response

LDS Charities is often among the first respondents in times of natural disaster. They strive to provide the needed resources of food, water, clothing and any immediate medical attention. Hygiene kits and food are

some of the main supplies provided in time of disaster. They are able to reach so many people and be present quickly following disasters due to their international church membership. Emergency Response has been provided to 175 countries and territories since 1985 with 111 projects in 43 countries during 2017.

Immunizations

“LDS Charities works with global immunization partners, such as UNICEF and GAVI, to increase routine vaccinations and reduce the number of lives lost to tetanus as well as many other preventable diseases. (2017 LDS Charities Annual Report, 2018)

Immunizations are one of the most important technologies for avoiding the spread of disease, especially fatal illnesses. Young infants are most vulnerable to sickness, therefore, having greater access to vaccines and immunizations ensures that infants may be saved from potentially destructive diseases. LDS Charities has provided immunizations to 45 countries and territories since 2003.

Maternal and Newborn Care

LDS Charities is a member of The Survive and Thrive Alliance, a partnership within the UN that focuses on reducing maternal and neonatal morbidity and mortality in low-resource areas. (The Survive and Thrive Global Alliance, 2018) This group has helped train and equip various existing in-country professionals with the necessary skills to ensure that the health and lives of children and their mothers are taken care of throughout maternity and development. Lifesaving training and equipment are some of the resources that LDS Charities provides to nations to aid mothers and newborn babies. They also provide trainings to doctors, nurses and midwives, by teaching survival techniques such as how one may resuscitate infants if necessary. In harmony with the Sustainable Development Goals, there is hope that there can be a great decrease in the amount of mother and infant lives lost in childbirth. Maternal and Newborn Care has been provided to 92 countries and territories since 2003. 34,600 caregivers have been trained in 38 countries during 2017.

Vision Care

LDS Charities aims to help prevent avoidable blindness by providing local professionals the resources and training needed to provide optical exams. Everything is done with the goal of creating opportunities for local eye care physicians so they can expand their knowledge and capabilities in treating vision problems. LDS Charities have helped 97,000 people in 40 countries with avoidable blindness or vision issues during 2017.

Wheelchairs

LDS Charities in accordance with the parameters set by the World Health Organization strives to ensure that those with physical disabilities or needs receive the aid they require.

“The wheelchair is one of the most commonly used assistive devices for enhancing the personal mobility of people with disabilities. An estimated 1% of the world’s population, or just over 65 million people, need a wheelchair. In most developing countries, few of those who need wheelchairs have access, production facilities are insufficient and wheelchairs are often donated without the necessary related services. Providing wheelchairs that are appropriate, well-designed and fitted not only enhances mobility, but also opens up a world of education, work and social life for those in need of such support.” (Guidelines on the provision of manual wheelchairs in less-resourced settings, 2016)

Mobility, or the lack thereof, proves to be one of the most impactful health challenges that people in the developing world can face. In an effort to provide sustainable aid, LDS Charities will partner with various local group and provide the trainings and tools needed to keep donated wheelchair in good condition. Collaboration with local groups is important as local residents are those who are trained to handle the repairs of the wheelchairs when needed. Wheelchair and walking aid initiatives have reached 133 countries and territories since 2001 and 49,000 people in 41 countries during 2017.

Refugee Response

LDS Charities continues to respond to the refugee crisis, they do this by providing aid to refugees in foreign countries, and by providing places for refugees to live in state of Utah. These refugees receive the help

they need to settle in to a new land, or help them meet their needs while they wait to return to their home nation.

“LDS Charities continues to use a three-pronged approach: immediate relief, long-term aid, and resettlement support. LDS Charities’ immediate relief efforts include providing food, water, shelter, and clothing. Long-term support includes assisting camps and communities with clean water, ongoing education for children, and medication and equipment for health clinics. Resettlement support includes helping refugees find employment and receive language training in resettlement countries” (2017 LDS Charities Annual Report, 2018)

It is important that people receive the aid they need, but it is also very important that they learn the skills needed to be self-reliant and sustainable in the future. While refugees are working on developing these skills, it is also important that local and foreign refugees are provided with the shelter they need.

“Homelessness affects many communities and families, and we strive to help those in need elevate their personal circumstances and eventually become self-reliant. LDS Charities also contributed \$5 million to the nine national resettlement agencies that help newly arriving refugees integrate into the United States” (2017 LDS Charities Annual Report, 2018).

Refugee Response has occurred in 119 countries and territories since 1985. In 2017, 378 projects in 49 countries have been completed.

Conclusion

The state of Utah understands the important role that the Sustainable Development Goals, chartered by the United Nations, plays in the future of our developing world. As global populations rise, it becomes more difficult for nations and organizations to ensure that all members of the human race are granted access to the basic human rights. LDS Charities is a great example of a Utah based organization strives to help its local residents, but also aims to help the developing world as well. Due to his reason, Utah is the ideal place for the UN to host its DPI/NGO conference in summer of 2019, because of the work LDS Charities has contributed with food, clean water, community projects, emergency response,

immunizations, maternal and newborn care, refugee response, vision care and wheelchair initiatives as they relate to the Sustainable Development Goals.

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Utah: Tourism and Development as a Framework for Mountain Nations

By: Aldon Trimble

Aldon grew up in Vermont where his love for the mountains began, hiking, backpacking and snowboarding in his youth helped him appreciate the beauty of the mountains. He served his church, and was assigned to Mexico for the space of 2 years, where much of his time was spent helping educate and serve the mountain people there. He is currently married to his beautiful wife Mekenzie, a native of alpine Utah. Aldon is in his last semester at UVU for Political Science. His field of study has focused on economic development and sustainable development. Aldon has always been interested in economic development and the UIMF has been an intermediary for him to educate myself on sustainable development. One of the most important parts of his education is his association with service learning projects, working with locals and learning with them while helping to provide them with value and information. Currently Aldon is working with the UIMF, as well as the Office of New Urban Mechanics to highlight the issues present with children of incarcerated parents in Utah, this project's findings will be presented at Oxford and the United Nations.

Introduction:

The sun rises on the beautiful Rocky Mountains and illuminates the Salt Lake Valley where nearly 1.5 million citizens reside. The Rocky Mountains stand at nearly 5,000 feet above sea level. As one travels up the windy canyon roads the foliage can shift and change. Lakes and reservoirs augment the already beautiful landscape, roads and paths carved into the canyons create accessibility to the beauty present in the mountains of Utah. Often referred to as the Wasatch Mountain range, or the Wasatch front, these mountains represent a gem of natural beauty and wonder for Utah residents.

An incredible amount of work and development went into changing Utah from a simple desert home of pioneers, into an economic hub

and tourist attraction. The transformation of the untamed mountains into the famous resorts and parks of present day Utah was only made possible through work and dedication of local citizens. Utah has become a hub for tourism, outdoor travel, and recreation, but this success did not come quickly. Originally, Utah was a religious hub for the Church of Jesus Christ of Latter Day Saints, and home to a train station on the way to California.

Tireless years of planning, development, and investments lead to the transformation of Utah. Utah now has 14 ski resorts, 10 of which are less than an hour from Salt Lake City, an international airport, 11 national monuments, five national parks, two national recreational areas, one national historic site, and 43 national parks. The success of Utah took many years. A basic skeleton of frameworks acted as a foundation for later investment, planning, and development. Each project focused on encouraging tourism. Although this framework will not work exactly the same for every mountain region, this discourse will attempt to create a basic outline for developing mountain nations using these frameworks to encourage sustainable mountain tourism (SMT).

Sustainable Development Goals:

The Sustainable Development Goals of the UN FAO deliberately focus on increasing the quality of life for all peoples regardless of their financial status. Many of these development goals are lofty and compound one upon another. For example, before tourism flourishes, this basic UN goal must be reached:

“End hunger, achieve food security and improved nutrition and promote sustainable agriculture.”²

There is a laundry list of economic and development goals set in place by the UN Sustainable Development Goals (SDGs) association. If a government intends to develop sustainable mountain tourism in their regions they must first address some simple and basic needs.

A goal of developing tourism in a mountain region requires the act of creating a physical infrastructure to get tourists out of population centers and into areas of interest. Another preliminary objective presented by the UN, involves the accessibility to clean, potable water. As tourism creates increased access to mountain regions, naturally fresh water sources

are threatened and sullied. Often, mountain regions suffer from low temperatures which slow or halt the natural decomposition of human wastes. This causes complications as the waste drains into rivers and fresh water sources if not properly dealt with.³

In many situations, conservation of natural resources and tourism development conflict with one another. Utah has struck a balance between conservation and tourism development, as tourism increases, development, investment, and traffic also increase. As the demand for tourism increases, investors and developers typically increase the capacity of their facilities while adding extra amenities. Organizations, nonprofits, and mountain communities need to be ready to reach out to their governments to help regulate businesses that, if left unchecked, might exhaust the resources present in mountain communities. Unregulated business practices gnaw away at Utah's natural beauty, depleting resources if not carefully managed and protected. Several conservationist organizations have worked together to lobby state and local governments to prevent damage to Utah's natural beauty thereby making developers accountable for conservation.⁴ Although Utah and its government have been able to find a happy medium between conservation and development, many developing nations and regions find it difficult balancing the two. In many cases smaller mountain tribes and peoples lack the resources to lobby their governments for environmental conservation, which becomes an issue in all sizes of government.

The Sustainable Development goals of the UN numbers 8 and 9 can help us focus in on the issues in question, and how developing tourism can be a possible solution to:

“8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, ... [and] 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.”²

In many cases developing nations have difficulty modernizing and breaking through that barrier. In order to progress beyond the labor and commodities markets, core infrastructures must be in place as a starting point. Which can then be extended into mountainous regions that would not have naturally developed without the proper governmental inducement or funding.

As development increases in mountain tourist regions opportunities increase for investors. As tourism increases in size and viability in any given mountain region, agriculture and resource harvesting tend to plummet. As tourism demands a greater amount of cheap labor, other industries tend to suffer. If tourism is left unchecked in a given region, competing markets suffer tremendously. Utah has been able to harness the natural beauty of the mountains, including resource harvesting. Utah has created the Department of Natural Resources, established for the specific purpose of defending the natural resources and beauty of the state. Additionally, Utah created the Office of Travel and Tourism, which seeks to preserve the unique beauty and charm of Utah for generations to come. Both sides need to be heard, Utah has found a way to continuously protect public lands while allowing them the proper investment from businesses and the private sector.

Identifying Local Strengths:

One of the first steps for success is creating a public private partnership to identify possible tourism markets from a particular region. Skiing and hiking in the Utah's mountainous regions became a way of life and survival prior to sporting events. Skiing was a means of transportation rather than recreation, which changed in the earlier part of the 1900s.

The Wasatch Mountain Club, organized in the early 1920's, became an epicenter for social development of outdoor recreation.⁵ After ten years the club grew in size, and membership. It began organizing trails for skiing, rock climbing, ice climbing, hiking and more. As private interest grew in the 1920's in the Wasatch Club, economic struggles hit the US with the stock market crash of 1929 leading to the great depression. If ever there was a time in American history for government to step up it was during the great depression. The New Deal created jobs and helped to stimulate the economy. Part of the New Deal incorporated the Civilian Conservation Corps (CCC), which helped young unskilled men work and develop national parks, and the infrastructure for those parks. Utah benefited from this project and several roads were constructed leading to common skiing locations.⁶ Additionally the CCC worked in a forestry capacity, which successfully helped create paths and aided with upkeep in the state and federal parks that existed at the time. Outdoor recreational areas received a grant from the government, which allowed their industries to begin grow-

ing and attracting larger audiences. Additionally, the development of the infrastructure stimulated the economy providing jobs to unskilled laborers.

Utah in the 1930's has more in common with developing mountain nations than present Utah. There was an abundance of unskilled labor, and a large untapped landscape ripe for development. The Wasatch Mountain Club would in the 1930's push to conserve, "Timpanogos Cave from mining Interests."⁵ This holds true to the fact that exploitation of resources in mountains may not be the only option for monetization in developing nations. Both the state and federal governments stepped in and conserved the lands, which would later become one of Utah's greatest assets. Considering how commodities trading value holds steady in the global marketplace and tourism has been increasing as a percentage of global GDP, it may be a more profitable option to invest in tourism development than mineral extraction.⁷

One of several possible solutions for modernizing nations to increase import dollars is through tourism. Increasing tourism is a plausible and effective method for increasing government and private revenue. In a recent report tourism constitutes a larger portion of the global economy each year:

"International tourism alone generated over US\$1,159 billion in 2013(UNWTO 2014a), and, if current forecasts prove to be correct, this figure could rise to US\$2 trillion by 2020 (WTO 1998)... If indirect and induced economic contribution is included, then tourism overall generates more than \$6.3 trillion annually, accounting for roughly 10 percent of global GDP and employment (WTTC 2012)."⁷

If projected revenues continue as predicted by this source then tourism demands will increase, which could potentially increase the demand to go places unpopular in the past. Often times a large portion of the tourism market is being taken up by large state actors like the US. However, this leaves an option for niche markets and development projects for smaller nations, in spite of their limited resources. The example of how Utah developed into an outdoor recreational hub allows for insight on how smaller developing nations can emulate Utah and achieve similar niche successes. Although mountains can be a great place to ski, not all developing mountain nations have the opportunity to create tourism attractions

around that market, and may be forced into something different or unique.

Parks and Resorts:

National and state parks represent over 63% of all land in Utah. Although some may say this is excessive, the state still has fairly untapped lands that can be used for private purposes. The big five state parks, commonly known as; Zion's, Bryce, Canyonlands, Capitol Reef and Arches brought in a whopping 15.2 million visitors to Utah. Experts report:

“...Estimated \$1.1 billion while visiting the state’s “Mighty 5” national parks — Zion, Bryce Canyon, Canyonlands, Capitol Reef and Arches — along with national monuments and historic sites, including the popular Cedar Breaks and Pipe Spring national monuments, according to the report. That money helped support about 17,600 jobs and \$547 million in labor income, says the annual peer-reviewed economic analysis. Visitor spending and labor income combine to equal \$1.7 in direct economic output.”⁸

Although the estimated billion dollars spent on traveling to National parks in Utah seems like a lot, not all of that money is spent inside the park or on park fees. Much of that money is going to the private industries like hotels, restaurants, gasoline suppliers and more.⁸ The public lands that lie within Utah’s beautiful mountain landscape have sophisticated infrastructures, roads, sewage, cabins, trails and so much more that require regular upkeep. The upkeep is another aspect of the success in Utah, sustainability within an already thriving industry. If the parks were to be left open to the public, unregulated, the resulting park would end up littered and unsightly. Essentially, if these mountains of Utah are considered the Gem, they would require regular cleaning and maintenance to maintain their luster.

The cost of maintenance for these massive plots of land can be exorbitant, but they generate taxable revenue, as well as thousands of jobs in the state, unfortunately this can create a large barrier for smaller LDC (Lesser Developed Countries) wishing to enter the tourism market plausibly. In an article published by the UNFAO it noted some of the difficult hurdles to overcome for LDCs:

“Tourism development in mountain regions depends on many fac-

tors: attractiveness of the destination, safety, professionalism of local businesses and hospitality structures, availability of capital, etc.”⁹

Security is just as important if not more important than the beauty and maintenance of the territory or park. It is all too common a problem for small mountain nations to be stuck in border squabbles, or some sort of inconsistent security risk due to their lack of regional stability. The framework of Utah may fail in this exact respect, considering the fact that Utah is completely protected by being a part of the US, a hegemonic and regionally dominant military power with nearly endless resources and no foreign borders. Hope is not entirely lost, countries with capacities to maintain stability within their border may have access to international organizations that may be able to lend support and guidance in their pursuits to enter into the tourism markets. The IMF even allows for small communities to submit applications for grants and help in development of sustainable economic development.¹⁰ The IMF is not the only entity willing to assist in these developments, but the responsibility remains chiefly with the nation or state with the ambitions to follow through with projects like these.

Private investment may also be an option for development of parks or more likely resort types of systems like the 10 world class luxurious resorts nestled high up in the Rocky Mountains. Sometimes governments can sell portions of national lands to private buyers in order to benefit both parties. Several resorts in Utah are built on former government land, or built under the permission of the US government or Utah government. Sometimes the costs associated with properly maintaining a park or public lands can outweigh the benefits and governments desire to sell public lands to the highest bidder. One such case occurred recently in Utah with the proposed selling of portions of Bear's Ears National Park and Grand Staircase-Escalante. Both of which had proposed portions of the parks being removed and sold to private bidders with the expectation that their aim was at extraction. This was met with much resistance, there is an attitude of conservation abounding within the state of Utah.

A possible option for smaller countries may be to seek out private investors, large companies with expertise and capacity in the field of tourism. This may not be their only recourse, but a possibility to help in augmenting their efforts at development. Private companies can bring prestige and expertise at development where it is much needed. Agreements and

partnerships can go a long way for sustainably developing mountainous regions.

Additional Suggestions:

Not all rural mountain regions are the same, some are arid and dry, others are densely populated by foliage and all forms of greenery. For each different type of mountain region there is hope that a development project can take root and move forward. Some recent examples of creative solutions are; agrotourism, safari like tours in Niger, or nature based tourism. In summary the key is to use what resources available to employ a unique experience. This method can attract the part of the tourism market that does not wish to travel to one of the more developed states.

Conclusion:

Utah's successes over the years can become a useful example and framework for LCDs with the intention to develop mountain tourism. The experience of Utah can guide other mountain nations to success. Although the framework that Utah provides for Sustainable Mountain Development works properly and efficiently for Utah, adjustments may be necessary for other states wishing to employ the framework. The beauty and majesty present in Utah has been augmented by proper development and infrastructural projects, allowing people of all walks of life, from all over the world, the opportunity to experience the top of Mount Timpanogos, or Timpanogos Cave, or perhaps a relaxing weekend in one of the high end resorts nestled deep within the mountains. With the Utah culture of conservation, the outdoor recreational industry and tourism industries have found a welcome place to grow and thrive. As the governments and private entities work together at common development goals more good will come from Utah. If other nations follow this or similar models there may be more options for citizens of all nations to peacefully take in the world and share its beauty with one another.

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Section 3

Mountain Issues Worldwide and Comparative Cases

Sustainable Mountain Development and Israel: Assessing Current Practices and Recommendations to Further Implement SDGs

By: Michael Hinatsu

Michael Hinatsu was born and raised in agricultural southwest Idaho. He attended Fruitland High School, where he applied his interest in politics and international relations to his senior thesis, which critiqued Bush and Obama-era Middle Eastern policy. Michael currently attends Utah Valley University, where he is pursuing a bachelor's degree in Aviation Science and an eventual career in the airline industry. Interested also in meaningfully contributing to public discourse and the political culture of the United States, Michael is also minoring in Political Science and in Constitutional Studies, and actively contributes to the mission of the Utah International Mountain Forum (UIMF), a coalition of student clubs at UVU.

Introduction

Israel has responded successfully to the UN's 2030 Development Agenda and the Sustainable Development Goals (SDGs), especially with regards to water, agriculture, and gender equality. However, the successes of Israel's sustainable development efforts have not been fully experienced by Israeli Arabs and Bedouins, especially in mountainous and desert regions. Israel should take specific government action in education, employment, modernizing agriculture and other industries to improve the economic and social condition of its Arab population. Most notably the Bedouin and mountain communities within its borders.

Development of the SDGs

The SDGs were developed by the United Nations (UN) to improve upon prior goals to end world poverty and develop new goals that directly address lingering global concerns. Forerunners to the SDGs, the Millennium Development Goals (MDGs) established in 2000 consisted of eight goals derived from the Millennium Declaration to "uphold the principles of human dignity, equality and equity at the global level." Goals of the

declaration included eradicating extreme poverty and hunger, promoting gender equality and female empowerment, ensuring environmental sustainability, and attaining global partnership for development.

While the MDGs were globally accepted, inconsistent progress towards the goals necessitated a revived response by the international community to the problems addressed in the Millennium Declaration. Fehling, Nelson, and Venkatapuram praised the progress made to lessen the number of certain groups living on extremely low wages, lower child mortality, and more school enrollment, but pointed out that “progress across all MDGs has been limited and uneven across countries,” noting that the goal of global partnership was not progressing and that infant mortality rates, hunger, and poverty persisted in high levels across Africa and Southeast Asia. Furthermore, the Millennium Declaration did not address contributors to poverty, hunger, and inequality in developing countries. In response to these and other concerns, the international community developed the SDGs to replace the MDGs and fill the gaps created by them.

The SDGs were created to improve upon the MDGs and to better respond to the complex global issues that surround poverty. The seventeen SDGs—which include goals of no poverty, zero hunger, gender equality, clean water and sanitation, decent work and economic growth, and partnership—derive from five focus areas listed by the UN’s 2030 Agenda for Sustainable Development: people, planet, prosperity, peace, and partnership. These goals and their 169 targets are to be addressed and coordinated by the international community with the goal of achievement of their indicators by 2030.

Survey of Israel’s Response to the SDGs

Israel’s response to the SDGs consists of public and private sector mobilization resulting in domestic improvements on, inter alia, agricultural technology and innovation, water usage, and advancements in gender equality. Prior to the SDGs’ implementation, Israel’s government implemented a plan to refocus on sustainable development. The plan, called the Strategic Plan for Sustainable Development in Israel, required every government ministry to create a sustainable development plan according to a number of ministry-specific goals, such as a National Infrastructure Ministry goal to provide more renewable energy power, an Agriculture

and Rural Development Ministry goal to reduce pest control and move towards organic farming, and a Foreign Affairs Ministry goal to cooperate with the Palestinian Authority on sustainable development issues. With the adoption of the 2015 UN resolution A/RES/70/1 launching the SDGs, Israel also recommitted to fostering sustainable growth and to work with other countries to end poverty worldwide. Two days after the UN implemented the SDGs, Israel delivered a statement to the UN Summit on Sustainable Development highlighting the country's sustainable practices, stating that agricultural development and gender equality were of particular importance in the worldwide push for sustainable development. Many of Israel's subsequent actions thus focused on agriculture, water sustainability, and gender equality.

Israel is well-known for its agricultural technology and innovations. In Israel, just under 14% of land is suitable for farming. However, because of innovations such as drip irrigation, pest control, and water desalination, Israel produces around 70% of its food needs. Thus, Israeli agricultural innovations have effectively responded to the problems of low rainfall and relatively poor land quality that characterize the Middle East. The Volcani Center in particular has been effective in helping Israeli farmers increase yields and implement alternative, environmentally-friendly production methods such as greenhouses. Israel continues to use its agricultural technologies and infrastructure in a sustainable way both domestically and internationally.

In addition to domestic improvements in sustainable agriculture, Israel has also partnered with other countries to share agricultural knowledge, in harmony with SDG #17 regarding global partnerships for sustainability. Israel has worked specifically with Ghana and India to improve crop production and improve agricultural practices in arid climates. Israel has also sought to work internationally to advocate sustainable agriculture. In a 2015 statement to the UN Second Committee, which deals with world economic and financial issues, Israeli diplomat Shani Cooper stated that "agricultural technology has the unique power to eradicate poverty and ensure the sustainability of food systems, while preserving resources, and therefore plays a key role in the achievement of the SDGs."

In concert with agricultural needs, Israel has made substantial improvements in water quality and usage in line with SDG #6. For example, Israel has made advancements in the treatment and use of wastewater.

Nearly all wastewater in Israel is reused, mostly for agriculture. Additionally, a 2017 law required stores to charge customers for using plastic bags, to attempt to reduce the number of plastic bags polluting the Mediterranean Sea. A year later, plastic bag usage dropped by 80% and there were 50% less bags polluting the ocean as before. This directly deals with SDG #14 of promoting ocean sustainability and conservation.

Israel has also made great efforts in water desalination. Raveh and Ben-Gal found that Israeli desalination practices reversed two decades of increasingly poor soils while improving crop yields and food quality. Thus, answering the need for better irrigating practices and providing a model for other arid regions to follow. Recently, Israel gained bids to build a large desalination plant in central Israel, which when completed, will be able to aid in supplying 85% of Israel's clean water. This is an example of how Israel has been able to implement solutions within its own borders that address the problem of water access and usage, while providing models of water usage for similar nations to follow. However, water access and usage can lead to tensions among nations sharing water sources. Water issues are often politically charged, and such is the case between Israel and Palestine access to the Jordan River regarding Arab/Palestinian water access.

Israeli war victories and subsequent occupations of the Golan Heights and West Bank have led to Israeli control of Jordan River water access. According to al-Shalalfeh, Napier, and Scandrett (2018), this control is exclusionary and hegemonic to Palestinian water access, which makes the realization of SDG #6 impossible without significant policy changes. Chenoweth argues that equitable policy decisions will allow both Palestinians and Israelis to tap into "sufficient naturally available water resources". Indeed, international law guarantees Palestinian access to Jordan River waters. Israeli water sovereignty can be understood as an effective tool against what Israel perceives as a threat to its existence. The furtherance of the water SDGs and related targets in Israel and the region relies in part upon a change in Israeli policy, which has long viewed places such as Gaza and the West Bank as prone to destabilization by terrorist groups and threats to Israeli sovereignty. Currently, Israel has proved unwilling to relinquish control of Jordan River water access to Palestinians, especially given recent problems such as the March of Return and the West Bank settlements disputes.

Further Applying the SDGs in Israel

Further Israeli implementation of the SDGs should include Israeli Arabs, and specifically focus on mountainous and desert communities of Arabs, particularly of Bedouins. Israeli Arabs in general experience a number of economic gaps when compared to Jews and others in Israel. The Organization for Economic Cooperation and Development's (OECD) 2018 Israel Economic Survey showed that Israeli-Arabs experience higher poverty rates, lack of occupational training, and lower level education when compared to non-Arabs in Israel. The survey noted the interconnectedness of these issues and recommended "reforming education, infrastructure and product markets [to] enhance inclusiveness and productivity." Such gaps can be attributed to the minority status of Arabs in Israel, as well as a lack of government initiatives aimed specifically at Arabs. Government initiatives have thus far not adequately focused on specifically Arab issues with regard to economic and social gaps.

In the absence of significant political initiatives, the Israeli private sector (including also local organizations and community members) has attempted to improve Israeli-Arab relations. For example, Palestine and Israel engage in trade relationships and mutual economic development in areas such as telecommunications, agriculture, tourism, and securing foreign investments, many times at a high degree of cooperation and knowledge/resource sharing. Such cooperation has been cited by researchers as a model that can benefit regional peace processes. Dobers, Ihle, Kachel, and Liebe state that a majority of Israelis have trade relations with Palestinians, which has softened each group's views about the other. Some Israeli NGO rhetoric also favors more Israeli-Palestinian political and economic partnerships. Additionally, many Jewish and Muslim individuals along with groups in Jerusalem partner on initiatives related to public life with great cooperation and congeniality. Such efforts by civil society in Israel apparently lead to warmer relations between Jews and Arabs. Economic ties in this manner could have the dual effect of improving the lives of Israeli Arabs, especially those in mountain communities, as well as furthering the Israeli-Palestinian peace process in the absence of significant government action for that purpose.

Education can also improve relations. In Israel, primary and secondary schools are separated according to ethnicity, unlike higher education. However, inclusiveness and academic instruction has been shown

to improve relations between Israelis and Palestinians. For example, Rebecca Bardach argues that schools with both Jews and Arabs can improve cooperation between the groups and work to solve socio-political and socio-economic problems. In higher education, cooperation and tolerance has also led to improved Jewish-Arab relations. For example, the critical media literacy education program in some colleges engages Jewish and Arab students with media coverage of the Israeli-Palestinian conflict and has led to greater “awareness of media frame biases, acceptance of the Other, and sensitivity to both sides”, opposed to often divisive media coverage. Additionally, a comprehensive approach to coexistence, taking into account Arab-Jewish history, inequalities, introspection, dialogue, and comprehensive educational programs, and other realities could improve future peace. The link between education and coexistence is important to consider, especially given SDG #4 which deals with equalizing education.

Applying SDGS to Mountain Communities

A knowledge of the demographics of mountain communities in Israel is essential in understanding the problems facing optimal sustainable development in such communities. Geographically, the primary mountain communities are found in the north-northeastern parts of Israel in the West Bank, Galilee, and the Golan Heights. These areas contain diverse peoples, many of which are Palestinian Arabs. The West Bank is primarily Palestinian Arab, with a growing number of Israeli settlers, while sizeable populations of Arabs live in the mountains and hills of Galilee and the Golan Heights. Additionally, these areas are home to diverse ethnic groups, such as the Druze in parts of Galilee and throughout the Golan Heights. The current Arab-Israeli conflict directly influences those mountain communities, such that the economic issues they face are influenced by Israeli policy that disfavors Palestinians. As such, these communities face not only environmental and economic barriers to sustainability, but also political barriers that exacerbate environmental and economic barriers.

Issues relating to SMD in the West Bank, the Golan, and Galilee surround Israeli water policy, climate change, and the increased need for economic sustainability. The problems themselves should not be understood as simply regional concerns or concerns that have no bearing on Israel as a whole. Rather, the concerns of these mountain communities intersect with and can influence greater Israeli economic, agricultural, and

environmental concerns. The Food and Agriculture Organization of the UN (FAO) describes the necessity of SMD:

By providing key environmental services such as freshwater, biodiversity conservation and hydropower to more than half of humanity, mountain ecosystems play a critical role in world development. Mountain systems are essential building blocks for long-term sustainable global development, poverty alleviation and the transition to a green economy. In a world heading towards water, food and energy crisis, sustainable mountain development is a global priority.

Israel, therefore, could improve country-wide sustainability by focusing on mountain areas. Three areas of improvement are especially important, relating to SDG #13, #6, and #17 respectively: 1) responding to the adverse effects of climate change on agriculture in mountain communities, 2) addressing water needs of mountain communities, and 3) facilitating cooperation between domestic and regional mountain communities.

First, increasing drought conditions adversely affect the environmental sustainability of Israeli mountain communities. Victor states that the Middle East is warming at rates higher than global averages and has the least resources available to respond to such trends. Mountain communities will be even more adversely affected. For example, prolonged droughts due to rising temperatures could result in less forage for grazing animals and crop loss in areas unable to access desalination or artificial irrigation technologies. Additionally, Turco, Levin, Tessler, and Saaroni note that drought conditions in Israel have been increasing for thirty years and will likely continue to do so. Because mountain communities in Israel rely on agriculture, the effects of climate change can have a drastic negative effect on their economic, financial, and physical viability. For example, nomads in the West Bank rely almost solely on rainfall for their agricultural pursuits. Aforementioned water troubles will also be compounded and the negative effects of climate change will be felt throughout Israel in general. Therefore, Israel should support improving the agriculturally-based economies of its mountain communities through water policy reform and offering innovations such as desalination and drip irrigation. However, Israel must at the same time preserve traditional practices in these communities. The FAO recommends that traditional agricultural practices be enhanced, not replaced by, modern techniques such as diversifying crops and managing grazing. Such enhancement could meet the environmental

sustainability goals of Israel and provide essential economic and financial aid to mountain communities who are otherwise unable to obtain aid by themselves.

Israel can also support the development of non-agricultural industries that benefit agriculturally-based communities. In response to the constraints of agriculture, many in mountain communities have turned to tourism. Victor notes Israel Ministry of Tourism efforts in “developing trails and roads and encouraging establishment of eco-lodges.” Such ventures add an alternative source of income for mountain residents through direct and indirect participation in the tourism industry such as providing food, collectibles, or other items of purchase to tourists. This may be very beneficial, as tourism in Israel is growing at a high rate. Israel can also finance the creation of ecovillages—villages focused on sustainability through integrating modern tools of growth with traditional methods of agricultural production, as has been done with Bedouin communities in the Negev. Along with the possibilities of increased tourism and ecovillages in mountain areas, Israeli institutions should also find region-specific alternatives to agriculture that will increase sustainability.

Second, Israel needs to balance its water usage with the needs of mountain communities. Increasingly dry conditions in Israel have also affected how water is regulated in Israel. Central to Israeli water policy is the Judean Mountain Aquifer controversy and the Jordan River, both key water resources for the country and regional mountain communities especially. According to Victor, the Mountain Aquifer is the primary water source for Israel, as well as the only source for Palestinians in the West Bank. Because of political concerns, Israel has exclusive control over the aquifer’s water supply. Lautze and Kirshen state that Palestinians receive only 10% of water from the aquifer, which is half the amount recommended by the World Health Organization. This problem is exacerbated by increasing water needs of a growing population. Equitable Israeli water policy could soften the burden of water access to mountain communities, whose water supply is already extremely limited.

Third, Israel institutions can further support the economies of mountain communities by developing institutions that serve both domestic and regional mountain communities. Mountain communities in the Middle East are composed of diverse ethnicities, cultures, and traditional lifestyles. However, the agricultural, environmental, economic, and

financial problems faced by Middle East mountain communities are the same. Such problems can be more efficiently addressed via an institutional framework to coordinate development efforts or share knowledge on common SMD goals. No such organization exists today. The absence of a regional knowledge-sharing organization focused on sustainability presents an opportunity for Israel to commit further to the SDGs and increase regional unity. Such a decision need not be preceded by an overarching Arab-Israeli peace; rather, such an organization would contribute to the Arab-Israeli peace process by consolidating regional sustainability goals for mountain communities and encouraging more action between Israelis and Palestinians.

Applying SDGs to Israeli Bedouins

Negev Bedouins could benefit from Israeli efforts to improve agriculture and gender equality. Current Bedouin-Jewish relations and resentment can be traced to when the Negev was part of the British Mandate. British policy supporting an Arab state in the area was opposed by Zionists. Orenstein, Jiang, and Hamburg note that as a result of British policy favoring an Arab state, Jews organized settlements into territories that would have been part of a mandated Arab state. This increase in Jewish population eventually turned British policy to favor a Jewish state, which became a reality following UN Resolution 181 in 1947. This led to massive voluntary and forced removals of Arabs living in Israel's new boundaries. Amara states that before 1947, nearly 100,000 Bedouins lived in the Negev, but only around 11,000 Bedouins remained there after 1948. The creation of the State of Israel did not allow for a Palestinian state, which led to a series of wars and conflicts characterized by Arab-Jewish paradigms. Israel would later establish a number of settlements that Bedouins were required to move to. Because many Bedouins owned farmland in the Negev, many chose not to move, instead advocating for political recognition. For the most part, Israeli policy does not recognize most Bedouin communities and therefore does not give assistance. Israeli policy towards Bedouins reflects policy towards Arabs in general, i.e., that they constitute a threat to Israeli sovereignty and national security. The current situation among Bedouins in southern Israel is therefore connected to the ongoing conflict between Israel and Palestine, and full assistance to Bedouin communities would also benefit from a change in Israeli policy towards Arabs.

Israel has economic and political incentives to apply the SDGs to

the Bedouin communities in the Negev Desert. Israel can increase economic growth from investing money and resources into improving Bedouin agriculture. Currently, most Bedouin communities exist in a state of poverty and in general, Bedouin farmers in the harsh Negev Desert have not benefited from the modern agricultural production methods that have benefited other parts of arid Israel. Instead, Bedouin farmers have resorted to traditional farming practices that do not provide substantial economic or financial benefits to their communities and have not received substantial aid. Orenstein, Jiang, and Hamburg argue that Israel has ignored Bedouin concerns due to the effects of the Israel-Palestine conflict, and Israel views the large Negev Bedouin settlements as a threat to sovereignty. As a result, Bedouin farmers are left largely to solve their own agricultural issues.

Israel could also support traditional Bedouin farming practices with modern technology. Some have argued that if improved, traditional farming practices will improve the economic situations of the Negev Bedouins. For example, Rabia, Solowey, and Leu conducted a case study of a Bedouin farm which found that traditional Bedouin farming methods “can improve ecological sustainability, resilience to climate change and [farm] income.” Based on this study, Rabia et al. argue for a multifaceted plan involving modifying grazing lands, cultivating high-value crops, and producing more profit-yielding agricultural products to improve agricultural output, financial security, and economic viability of Bedouin communities. The advanced technologies and financial capabilities of greater Israel can therefore benefit Bedouin communities, in line with SDG#8 on work and economic growth, and #9 on innovation and infrastructure.

Bedouin women in particular face economic and social problems resulting from high poverty, patriarchal traditions, and poor access to jobs. Poverty rates in Bedouin communities are higher than in greater Israel, and in unrecognized communities, poverty rates are even higher. Queder, Morris, and Ryan state that these places are “absent from government surveys and statistics, and their needs are generally not addressed by government policy.” In other words, poverty is influenced by unrecognized communities not being included in government actions that could potentially raise their standard of living. As a result, 80% of those living in unrecognized communities are living in poverty, as compared with 58% of Bedouins in recognized communities. . Also, the unrecognized status of Bedouin communities means that Israel has no legal obligation to provide

for these communities. As a result, these communities are severely lacking in infrastructure, education, and development.

Bedouin social traditions further lower the ability of Bedouin women to achieve financial and occupational security. Biernacka, Queder, and Kressel argue that Bedouin women suffer marginalization from both their Arab identity and societal patriarchal traditions. The marginalization of Arabs by Israel has been sufficiently addressed. In light of traditional, patriarchal arrangements, however, steps can be taken by Israel to improve Bedouin women's circumstances, as well as to reverse negative effects of Israeli urbanization policies. These policies have contributed to the problems of status and economic-financial security that Bedouin women face.

Bedouin women, by virtue of a nomadic lifestyle, were tasked with caring for animals and providing food to their families, while the men were tasked with protecting the family and herd, as well as interacting with others. As in other nomadic and Islamic societies, men held the power in the relationship, but women exerted influence in family decisions. However, this dynamic changed with the forced urbanization required of Bedouins by Israel. According to Queder et al., as urbanization took place, men were required to find non-agricultural means of providence, which caused women to lose their power as agricultural caregivers and providers. Additionally, the patriarchal system whereby women were to stay in the home, barred from interacting with other men, continued. As a result, Bedouin women who seek work are constrained both by poor economic circumstances and pressure from husbands and other male family members to stay at home. Thus, the combination of poverty, lack of communal recognition, and forced urbanization significantly lowered the status and impact of Bedouin women.

In the midst of traditional and Israeli marginalization, Bedouin women have taken the initiative to improve their personal and familial financial situations through revitalizing traditional gender roles. Biernacka et al. and Queder et al. both highlight Bedouin women entrepreneurs responding to poverty and patriarchy by revitalizing traditional roles and power, creating photography businesses, selling traditional jewelry, opening restaurants, and engaging in tourism. These pursuits have both provided sustenance and dampened the effects of patriarchy and poverty, but are not sustainable in the long term, because of the tightness of Bedouin communities and the inability of Bedouin women to reach larger custom-

er bases. Additionally, Bedouin businesses are distrustful of the Israeli government, due to historical and contemporary conflicts. In short, the advancement of women in Bedouin communities ultimately hinges on Israeli policy that specifically addresses Bedouin poverty, job opportunities, and women's empowerment.

One solution is for Israel to recognize all communities and work for poverty reduction in line with the SDGs. Queder et al. argue that recognition of these communities alone will “maintain and upgrade women's traditional roles, render them more profitable and turn them into established livelihoods with long-term financial security.” Similarly, Biernaka et al. argue that Israeli institutions should assist Bedouin women in developing small businesses outside of traditional arrangements. However, such a decision is complicated by the ongoing Israel-Palestine conflict. Israel views Bedouins as threats to national sovereignty and do not take actions that improve the economic situations of a perceived enemy. Israel currently maintains strong leverage over Bedouin and other Arab communities by virtue of its economic and national defense policies, and given current rhetoric, Israel is not willing to drastically change policies regarding its Arabs.

Conclusion

Israel's implementation of the SDGs has improved the lives of many of its citizens and coordinating development efforts with other countries. However, focus needs to be placed on Arabs, especially in mountain and desert communities, that have only marginally experienced the benefits of sustainable development. Such groups still experience increased rates of poverty, economic uncertainty, and gender inequality, which has been exacerbated by Israeli policies. Great potential exists for Israeli policies to better implement the SDGs and elevate Bedouin and mountain communities agriculturally, environmentally, and economically. Through initiating cooperative and peace-oriented policies with Arabs, as well as increasing research into such communities, Israel can achieve both its own sustainability goals, as well as the lofty goals of the international community.

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The Closing of the Digital Divide – bringing sustainable Internet connectivity to mountainous regions deriving elements from Internet infrastructure previously built in developing countries.

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The Sustainable Development Goals (SDGs) of the United Nations are the 17 most important goals in the world for promoting sustainable development in developing nations. These 17 goals include: elimination of poverty, zero hunger, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, strong institutions for peace and justice, and partnership for the goals . In mountain communities that are sustainably developing, all mechanisms should be based on partnership to achieve these 17 indicators of sustainable development.

A specifically important mechanism to meet many of these sustainable development goals is the development and expansion of wireless Internet capabilities in mountainous regions across the world. In order to assist developing countries progress both economically and socially, there must be an increased focus on developing Internet infrastructure. New methods in designing cheap Internet infrastructure have eliminated budgetary concerns, allowing developing regions to increase capital market gains of goods and services within under-developed economies. Doing this will prompt reverse infrastructure development and provide further

access to transportation and energy infrastructure. Promoting these benefits will jointly achieve many of the SDGs of the United Nations. These benefits include, but are not limited to the promotion of poverty and zero hunger through growth of capital market gains, quality educations, gender equality, affordable and clean energy, decent work and economic growth, industry innovation and infrastructure, and the promotion of sustainable cities and communities.

In the past, wired connections have been the primary resource in the interconnection of Internet in developing mountainous communities. However, laying cable is expensive because the process involved is tedious and requires more time and resources than are available to these poorer communities. Present-day research places the cost for a rural expansion by the Internet Service Provider (ISP) Windstream Communications at \$383,500 for a single rural citizen. A secondary ISP, Northeast Nebraska Telephone Company, estimates a cost closer to \$41,915.88 for rural internet expansion. Unfortunately, there is not much available data for the true cost of internet in mountainous communities, the price is likely even higher for mountainous communities who have less access to the pre-built infrastructure necessary to develop internet capabilities. Fortunately, wired connections are no longer the only available internet source for developing nations. The expansion of wireless access technologies has greatly reduced the cost and physical expertise to install these technologies in developing regions. Successful implementation of this practice in the mountainous Nangi region of Nepal by a man named Mahabir Pun, has inspired new ways to research wireless infrastructure.

Due to the absolute remoteness of his home region of Nangi, Mahabir Pun had to walk two days every month for six years to check his e-mail. In 2001, Pun reached out to BBC news with the idea to create and design his own wireless Internet program. In 2002, two researchers from Europe ventured to Nepal to help Mahabir Pun design a new Internet program that relied purely on a wireless connection. The team adapted TV dish antennas to receive the signal and modulate the signal to other receivers within the city. Mahabir had previously created computers from scratch that were then able to be connected with the wireless internet. The immediate implications of the development were three-fold. First, implementation of videoconferencing systems to allow doctors and care providers in the Nangi region to communicate with a large hospital in Kathmandu. Second, 350 students in the Nangi region gained access to online

education materials, and third, residents of Nangi were able to sell goods and products more efficiently on the Internet. The long-term impacts of each of those have been profound.

Primarily, the videoconferencing system that connects Kathmandu to Nangi has increased local health standards. Videoconferencing has permitted Nepalese residents that are typically culturally bound to health standards, access to new Western medical practices that have far-reaching abilities for increasing the health and longevity of local populations. If replicated in other various mountain cultures, this system could help sustain long-term improvements in health practices of the individuals residing in these remote communities.

Secondly, access to basic education for students in the Nangi region have significantly affected the future of many of children and young adults in the area. As stated in Chapter 36 of Agenda 21 by the United Nations, "Basic education is the underpinning for environment and developmental education. All countries should strive for universal access to education." The access of Internet has provided valuable opportunities to the high schools in mountainous regions as well. Mahabir Pun suggested that many of the students in the area often leave the Nangi region because the lack of work and educational opportunities. The access to Internet has provided new incomes and opportunities online, especially for the younger people who have a better understanding of the workings of technology. Increasing access to education also has profound effects on GDP growth, a report by the Brookings Institute found that in a 75-year period, basic education increases GDP by 3.50%, and produces a per capita increase of \$7,699. Mahabir Pun also suggested that the access to the Internet in the Nangi has led to a desire on the local level to create a college and an eventual university in the mountainous region. A secondary-school education can have profound impacts on mountainous communities, a report on the effect of education on mountainous communities explained:

The focus of secondary education cannot be limited to training students for admission to a university in order to increase the number of jobless graduates but must include an education and preparation for leading positions in all fields of mountain development...the aim should be to provide an overall education to promote critical thinking, learning about interacting driving forces, thinking in integrated systems, planning in short- and long-term scales, cooperating with local people and policy

makers, and working successfully in a team.

In addition, Mahabir has suggested the building of an innovation center would allow further development by mountainous people. This idea would allow cultural identity to develop in a self-sufficient manner. This is made clear by the following quote:

Culture has a key role to play in sustainable mountain development. Over the centuries, many traditional cultures have developed beliefs and practices that preserve mountain environments. These beliefs and practices often provide a sounder, more enduring basis for conservation and development than measures based solely on economic, legal, or scientific considerations.

Promoting education and innovation of mountainous regions can be created and sustained by developing access to Internet infrastructure. Particularly important is the creation of a sustainable development program like that implemented in Nepal, a program that could provide a valuable service by preserving local culture and traditions, while adding upon it with the addition of access to basic Western services.

Wireless Internet programs have become increasingly less expensive and have the potential to create feasible income generating programs in mountainous regions, promote tourism, and create a new expanse of other transportation and infrastructure development. Primarily, the income generation comes through the expansive GDP growth that accompanies educational advances. According to a BBC reports, the “access to Internet has allowed local villagers to trade goods from live yaks to handicrafts”. Secondly, new tourism opportunities stem from a community’s connectivity to the outside world. The access to Internet allows various regions to more effectively advertise and provide services in these areas. In the Nangi region, the development of wireless Internet infrastructure has created new trekking trails in the Annapurna region. This has allowed tourists to have valuable experiences in regions that were previously unavailable to those outside the locality. Lastly, new transportation and infrastructure development programs can result from the expanded access to tourism that accompanies wireless Internet capabilities. For example, Mahabir Pun has shared the eventual desire to build a cable car that would connect Nangi to another local tourist city and promote diversity of the economy in both areas.

The most important conclusion that can be drawn from Mahabir Pun's experiment in Nepal is that access to wireless Internet holds the key to sustainable mountain development. The application of wireless internet has led to improvements in health standards, education and conservation, and GDP growth. New cheaper methods of designing wireless Internet have made expanding basic connectivity a feasible opportunity for all mountainous regions. Following the introduction of Internet in Nangi, Mahabir was able to wire another 42 villages in local proximity to the Nangi region. This brought Internet access to a wider variety of people, now these connections reach between 60,000 people in the mountainous regions of Nepal. Additionally, referring to the aforementioned effects on the Nepalese economy after the addition of wireless Internet in Annapurna, another benefit that accompanies expanding Internet access to mountainous regions are the benefits that accompany expanding Internet infrastructure. The addition of wireless Internet in Annapurna allowed increased expansion of advertisement for mountain tourist locations. This can bring ecologically friendly tourists to areas previously restricted from access, due to the lack of existent information about the location.

Well-documented research exists looking into the effects of Internet infrastructure access in developing economies. In a study that analyzes the impact of Internet access on economic growth and prosperity, it was affirmed that "while large enterprises and national economies have reaped major benefits from this technological revolution, individual consumers and small, upstart entrepreneurs have been some of the greatest beneficiaries from the Internet's empowering influence". This is particularly important for mountain communities because a number of mountain enterprises are small or medium businesses. With more than 2 billion people connected through the Internet, and almost \$8 trillion dollars exchanged each year through e-commerce, it is absolutely vital for mountainous communities to become part of this international system.

In metadata analysis of different developing and advanced countries, it was found that overall the Internet accounted for 21% of growth of GDP, with a consistent 3.4% increase across large economies, that together make up 70% of global GDP. Theoretically, this affirms that the percentage of GDP that is created by Internet access is increasing on a yearly basis. If Internet was a sector it would have a greater weight in GDP than agriculture, utilities, communication, mining, and education. The report also highlighted that the total contribution of the Internet to global

GDP is greater than the contributions of Spain and Canada respectively, and the GDP is reportedly growing at a rate faster than the GDP of Brazil. With unprecedented growth, it is critical that mountainous communities become part of this growing system in order to greatly influence infrastructural viability and socioeconomic development. The McKinsey Global Institute reported that there was a connection between Internet infrastructure maturity and higher living standards with the following statement:

We found that an increase in Internet maturity similar to the one experienced in advancing countries over the past 15 years correlates with an increase in real per capita GDP of \$500 dollars on average during this period. Took 50 years for the Industrial Revolution of the 19th century to achieve the same results. This demonstrates both the magnitude of the positive impact the Internet delivers to all levels of society and the speed at which it delivers them. The correlation to increased living standards is particularly relevant for developing economies, where the potential exists to rapidly leap forward and drive Internet-related growth.

Considering that many mountain economies could be classified as developing economies, the implications of this global study are great for mountainous communities. The Internet provides a beneficial system for development of living standards, which is a critical component in the sustainable development of mountainous areas. In many developing regions of the world where the GDP per capita is \$9,027, mountain communities such as Nepal struggle with a GDP that lies closer to \$729. An increase in GDP of \$500 dollars is a significant increase that would allow much needed economic growth in the developing areas of the world. Furthermore, the McKinley Global Institute highlighted the much-needed growth that occurs within the small business sector of developing countries, stating: Rejuvenating traditional activities has been the Internet's main impact.

The Internet has enabled fundamental business transformations that span the entire value chain in virtually all sectors and types of companies—not just online ones. These shifts include wholesale changes not only in how products are bought and sold but also in how products and services are designed, produced, and distributed. Even a tiny business today can operate with a dynamically managed supply chain that spans geographies and operates with a global workforce. Our global Small and Medium Enterprise (SME) survey found that 75 percent of the economic

impact of the Internet accrued to traditional companies that would not define themselves as pure Internet players. These businesses have benefited from the higher productivity the Internet enables can also serve as a powerful catalyst for job creation. Of course, the Internet has made some jobs obsolete. However, early evidence suggests the Internet can be creator. Jobs are created in the Internet ecosystem itself, as Internet companies hire workers ranging from engineers to sales and service personnel who design and deliver Internet products and services.

It is important to note that most of the businesses in mountainous regions are typically classified as small and medium enterprises. Thus, the conclusion can be ascertained that the benefits of mountain communities would be exponentially greater with the introduction of the Internet, allowing these local businesses to grow and serve a global population of consumers. Many argue that the introduction of Internet would cause a massive loss in job growth, especially in developing regions. However, a study done regarding the French economy, a developed country with mountainous communities, found that over a 15-year period 500,000 jobs were lost compared with the creation of 1.2 million new jobs; a net addition of 2.4 jobs for every job lost. This is correlated by McKinsey's global SME survey which found that 2.6 jobs were created for every job destroyed in a study of the effect of the Internet. This evidence suggests that the Internet has catalyzed job creation in the world, allowing for the much needed economic growth of varying worldwide mountainous communities.. An analysis of the data collected by the SME survey conducted by the McKinsey Global Institute stated that:

Startups and smaller companies with web technologies grew more than twice as fast as those with a minimal web presence, these results hold across all sectors of the economy. Furthermore, it stated that web-savvy SMEs brought in more than twice as much revenue through exports as a percentage of total sales than those that used the Internet sparingly. The Internet also created more than twice as many jobs as companies that are not heavy Internet users. This analysis holds across sectors from retail to manufacturing.

Many of the previously mentioned benefits are a result of a compilation of aggregated data across a wide range of developing countries. Specific examples of economic growth owing to Internet infrastructure development include the Western Highlands of Scotland, an area that un-

til only recently had limited Internet infrastructure. After the introduction of the Internet, the region saw a 30% increase in capital market gains. If these results were cross-applied to a variety of mountainous cultures, the capital markets gains in the global GDP would be clearly evident.

The key analytical reasoning behind the argument to promote the further development of Internet infrastructure is that reversal of the typical infrastructure pattern would accelerate the process as whole. Traditional understanding of infrastructure development is that it must begin with physical access like roads and bridges, followed by the development of energy infrastructure like electricity, which then permits different technological access such as Internet and telephone wiring. The inherent flaw in this traditional way of development is that it requires much more time and resources than the alternative form of infrastructure development. Poverty in the mountains is much more common and difficult than their lowland counterparts, owing to socioeconomic and environmental pressures. This poverty and lack of upward social mobilization means that mountainous communities are often unable to develop the necessary resource capacity to develop infrastructure in the traditional method, thus the need to create an alternative method that can better promote healthy critical infrastructure development. This described alternative method would involve reversing the traditional progression of infrastructure to better compensate for the economic mechanisms that mountain communities can afford. This reverse would be characterized by beginning with the development of wireless Internet infrastructure, the creation of which would follow the principles outlined in earlier sections of this research project.

New methods of wireless infrastructure that involve the use of cheaper materials would in turn allow mountainous communities to invest in such technologies. In accordance with previously stated data, this influx of wireless technologies would promote enhanced educational and economic benefits. Through these dual benefits, communities would undoubtedly experience a growth of local and regional GDP. The resulting economic growth would give greater purchasing power to these communities which, in turn, would promote faster economic development of physical and electrical infrastructure. This benefit is further compounded by the fact that electrical and physical access infrastructure can traditionally be developed at the same time. Typically, communities have to wait a period of time between the development of roads, then electricity, followed

by telephone lines. This period of waiting means that communities usually end up spending more during traditional infrastructure development. When this process is reversed, multiple avenues of infrastructure can be pursued at the same time thus decreasing and exponentially increasing the progress of infrastructure development.

When evaluating priorities for the lasting sustainable development of mountainous communities, there is an inherent importance in maintaining the Sustainable Development Goals of the United Nations. By improving basic access to simple internet infrastructure, these goals can be better achieved in the international community. Through increasing local economic development internet access can prevent poverty, help to eliminate hunger, bring clean water and sanitation, provide affordable and clean energy, promote health industry innovation and infrastructure, and finally provide decent work and economic growth. All 6 of these indicators are SDGs pursued by the United Nations. Furthermore, the increase in educational opportunities for students in mountainous areas that accompanies developing internet infrastructure lead to better health and well-being, quality education, gender equality, climate action, and reduced inequalities which will undoubtedly lead to sustainable cities and communities, along with responsible consumption and production. Together through the varying benefits of developing internet access, 13 of the 17 SDG indicators are directly affected. This concludes that bringing internet access to developing mountainous communities will help the United Nations to promote sustainable development across the entirety of developing nations, thus promoting socioeconomic development for all humankind.

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Water and War in Yemen

By: Dallin Vance

Dallin Vance is a student at Utah Valley University. He is currently studying a B.A. in History, B.A. in English, and a Certificate in National Security Studies. He has always been fascinated in studying different cultures and regions worldwide. He has previously been Published in the UVU Touchstones Journal and has been an editor on the Crescat Scientia Journal and on the Youth in the Mountains Journal. He is currently a member of the Phi Theta Kappa, Alpha Phi Theta, and Order of the Sword and Shield Honor Societies.

The Guardian's headline screamed "Battle for rebel-held Yemen port may trigger humanitarian disaster" The war for Yemen has continued to rage since 2014, when the Houthi rebels worked to force out President Abi Abdullah Saleh and the United Arab Emirates (UAE) coalition intervened to prevent it. This war is now expected to be a humanitarian disaster which has the potential to affect the lives of millions of people. While the news and media focus on the increasing casualties and body count, the U.N. and The Hague Institute for Global Justice are focusing on how the lack of water in Yemen can precipitate the humanitarian emergency by compounding the effects of the war and the famine in Yemen. The war has created a water crisis by disrupting water desalination which the coastal cities rely on as a water source. The outbreak of cholera and diphtheria from wells and other water sources also add to the crisis by eliminating sources of drinking water which are critical in sustaining civilians during an ongoing famine. The war has also disrupted groundwater flow and the water trucking industry which affects the agricultural output and the population in general.

The crisis in Yemen has already affected millions of people. According to a Security Council report in March of 2018, "The U.N. estimates that 22.2 million people are now in need of humanitarian assistance in Yemen; 3.4 million more than last year." This shows that the crisis is continuously growing as the fighting between the Houthi rebels and the UAE coalition increases in size, scale, and force. This fighting has forced Yemen citizens to rely on unclean sources of water and threatens to escalate the problem by destroying and disrupting Yemen's water supply system.

Satellite imagery of October 28, 2016, confirms significant damage to structures on the premises of the Al-Mocha water desalination plant. It cannot be established with certainty that this damage is due to the reported airstrike(s) of January 2016, or of the reported airstrikes on October 1, 2016. The latter has been reported by opposing factions in Yemen's war, though one claimed the warehouses were used as weapons storage instead of water-related purposes. This cannot be confirmed nor denied. Footage of another (set of) airstrike(s) on November 4 can be geolocated to the Al-Mocha desalination plant. It is not clear to what extent the water tanks have been damaged. In January this year, cracks were visible, but neither the October 1 nor the November 4 footage gives a clear view of the desalination plant.

The fact that there appears to be damage to these facilities through satellite imagery proves beyond all doubt that the war is affecting the water supply in Yemen to the main population centers along the coast. These attacks on the desalination plant pose a problem for the population of Yemen. These desalination plants provide a valuable source of water to the population that lives mainly along the coast, but also for the communities in the mountains. According to Qahtan Yehya, Yemen averages less than 50mm of annual precipitation along the coastline. This indicates that large population centers along the coastline receive the least amount of rain in the country, yet have the greatest population. Mountain communities located on Yemen's west coast also rely on this water. The mountain communities rely on old stone dams that are located, "generally at a point where it [the valley] narrows." These dams do provide water, but are mainly used to store runoff water. However, the amount gathered can differ from year to year. This means that if the desalination facilities are damaged and destroyed, it could seriously threaten the drinking water supply for most of the population of Yemen and also affect the mountain regions which are highly susceptible to fluctuations in the amount of runoff water collected, which is needed for their second crop of the year. They might have to use this for drinking water instead.

While some may view the missile attacks as being collateral damage in airstrikes aimed at other targets, it is actually a strategy employed by both sides. Christiaan Triebert argues that, "Unfortunately, the alleged attack on the Mocha desalinization plant is not an isolated [event] in Yemen's civil war" . . . "Water plays a vital role in war-torn Yemen. A staggering 13 million citizens— around half of Yemen's population—struggle daily to

find or buy enough clean water to drink or grow food,” The Guardian reported in 2015. The fact that water plants have been continually attacked over the course of the war shows that the strategy of both sides is to eliminate the water sources that their enemies control. This, however, creates a huge water crisis for the civilians who normally struggle to find enough water. If the desalination plants are damaged or destroyed, many civilians will be without a source of water. Yemen is already suffering from a famine and this lack of water will further expand the effects of the famine, killing more people.

Another way that the water issue in Yemen is affecting the civilian population is through the contamination of wells and other drinking water, which is causing diphtheria and cholera. Cholera has a huge effect worldwide in many third world countries today. According to the world health organization, there are somewhere between 1.3 million to 4 million cases worldwide resulting in 21,000 to 143, 000 deaths a year. This shows that it is a serious disease. America also suffered from Cholera epidemics in the 1800s, before the water supply was kept clean and regulated. In 1832, New York had a huge epidemic which killed thousands of people. “Astoundingly, when the epidemic struck New York City it prompted as many as 100,000 people, nearly half the city’s population, to flee to the countryside.” Cholera is spread through the contamination of food and water, it spreads very fast and may affect a population quickly. In the New York epidemic, it caused a mass migration of refugees fleeing ahead of the disease. The war in Yemen has caused a breakdown in basic sanitation and has created refugees as well. Many of the refugees don’t have access to sanitation, which in turn creates an environment that allows Cholera to spread quickly, killing more people, and contaminating water resources. The World Health Organization argues that, “Cholera remains an ever-present risk in many countries. New outbreaks can occur sporadically in any part of the world where water supplies, sanitation, food safety, and hygiene are inadequate. The greatest risk occurs in overpopulated communities and refugee settings characterized by poor sanitation and unsafe drinking water.” War-torn Yemen is a prime example of refugee settings and poor sanitation giving rise to a huge epidemic of cholera.

The Guardian reported that, “The cholera epidemic in Yemen has become the largest and fastest-spreading outbreak of the disease in modern history, with a million cases expected by the end of the year and at least 600,000 children likely to be affected.” The World Health Orga-

nization has reported more than 815,000 suspected cases of the disease in Yemen and 2,156 deaths.” The Washington Post in December of 2017 confirmed that the reported cases of Cholera had reached over a million. While 10,000 people had been killed in recent fighting, 2,156 people had died of cholera, meaning that for every ten people killed in fighting, two would fall due to disease and sickness. The rise of cholera to over a million cases means that over the past eighteen months 1 out of every 30 people in Yemen have been infected, and as the disease spreads, these numbers are likely to increase. As the cholera epidemic spreads, it could cause thousands of untold deaths and perhaps take more lives than the war. One reason for the spread of Cholera is the lack of proper sanitation.

Research done by The Hague Institute for Global Justice found that, “[a]n assessment of various governorates found that in rural areas 14.8 percent of the population surveyed mentioned they exclusively defecate in the open and more than half partly defecate in the open.” The report also mentions that, “in 96 percent of the rural sites there are no garbage facilities, whereas the figure is 87 percent in urban areas.” This open defecation is a problem because the open manure and feces create an environment ripe for disease. The lack of garbage facilities is quite alarming. Even in the urban areas, which are supposed to be better, 87 percent of people before the war were without the proper facilities for garbage. During a war, especially during a civil war, the rule of law can break down as infighting between factions occurs. This affects government departments like sanitation. Thus, the breakdown of sanitation systems regulated by the government means that an increase in the amount people without proper sanitation is likely. This means that the disease can fester and spread faster. It wasn’t until streets were cleaned and the open sewage abolished that the black plague and many American cholera epidemics were able to be stemmed. The cholera epidemic is likely to continue until the war ends and rule of law and government organizations are restored.

Along with the breakdown of law and order also comes the breakdown of government oversight concerning water and the sanitation of water sources in the urban areas, especially in the rural areas. The Hague Institute for Global Justice found that, “[i]n many places there are reports of pits and ponds where water accumulates and vector diseases are a threat. (WCPY, 2012). The percentage of [the] population with access to improved drinking water sources has declined over the same period. An assessment of various governorates identifies one of the main causes reported

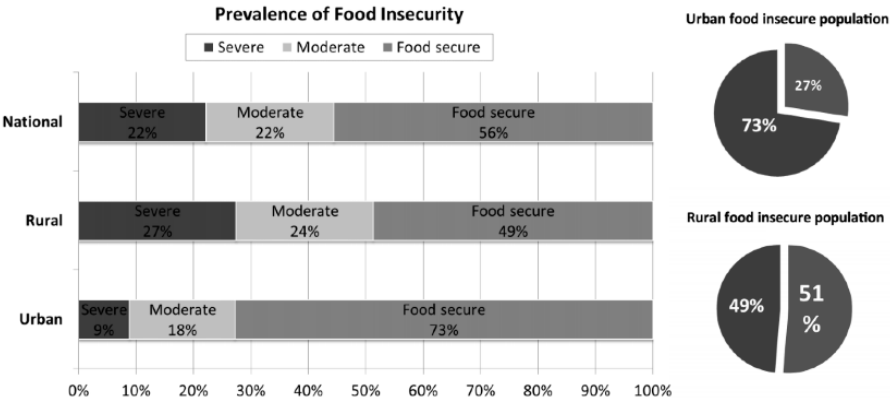
of unreliable water provision to be a lack of maintenance.” This lack of maintenance means that for the foreseeable future, the water purity will continue to worsen. This allows for local village sources such as wells, ponds, or pits to become even less sanitized. This, in turn, allows cholera to infect water and spread the disease. This especially impacts rural areas. According to The Hague Institute for Global Justice, “[i]n rural areas, 54 percent of the population suffer from water quality related issues, mainly diarrhea.” Which means as the war continues on, the levels of sanitation in rural areas where 96 percent do not have sanitation will likely lead to further deaths in the Yemen’s rural population. Most of the Yemen populations lives in the rural areas rather than the urbanized coastal cities, which means that a greater number of people in Yemen will likely die as the sanitation of their water decreases drastically.

Already, one in every thirty people have been diagnosed with cholera. This will only continue to increase unless government oversight and aid organizations are able to bring in the necessary supplies and manpower to clean up the water sources. This can only be accomplished by bringing the war to an end.

In addition to the cholera epidemic caused by the breakdown of sanitation and the movement of refugees, the war is also affecting agriculture and the groundwater that is used in agriculture. This has the potential to increase the effects of the current famine and cause more deaths in Yemen. The Hague Institute’s report entitled *The Political Economy of Water Management in Yemen: Conflict Analysis and Recommendations* states that, “[b]eing the poorest country of the Middle East, Yemen is dependent on small oil reserves, agricultural and fishery exports, and development aid to sustain its economy.” This shows the importance of the agricultural industry in Yemen’s economy. Without agricultural exports, Yemen’s economy will suffer greatly. This will also increase the famine. Currently, the famine has affected at least 17 million Yemenis who don’t know if and when they will be able to eat next. This means that seventy percent of the 24 million people living in Yemen are in danger of famine and disease. This number is likely to grow as the war continues.

Yemenfamine.com estimated that, “[b]efore the war Yemen imported 90% of its food.” This means that Yemen’s agricultural crop was mostly cash crop based rather than local market based. According to the *Encyclopedia Britannica*, Yemen is known for its coffee crop, which Mocha coffee is named after. However, they also mention that, “[t]he most

common crops are cereals such as millet, corn (maize), wheat, barley, and sorghum; myriad vegetables from a burgeoning truck farm industry have appeared on the market in recent years.” This is important because these cereal crops are part of basic meals that will keep people alive during Yemen’s famine. However, it appears that the Yemen agricultural industry is not large enough to sustain most of the population because before the war began, 90% of the food was imported into the country. This is a serious issue because it means that food security, even in peacetime, is not good, as a chart from the WFP illustrates



This chart shows that in 2012—the first year of the current war—rural areas were more heavily affected with food shortages than urban areas. This may be due to the fact that many of the urban areas are located along the coastline and had more access to foreign aid. The rural areas are where crops are grown, but they have the most severe food insecurity.

Another issue that is connected to food insecurity is a good water source. In Yemen, most of the water that is used goes to agricultural purposes. In 2010, 3,328 million cubic meters of water were used for agricultural purposes while only 552 million cubic meters of water were used for domestic purposes. This means in agricultural areas (rural areas) most of the water supply is needed in order to sustain crops, but it also means that most of the country’s water resources are needed to sustain this agricultural production.

However, with the continuing war between the Houthi rebels and the UAE backed coalition, this countrywide diversion of water may not be

a reality anymore. “In both rural and urban areas, over 30 percent of the population are reported to depend on water trucking.” Reliance on water trucking is a problem because of missile strikes by the Saudis. These missile strikes may put a stop to the rural population’s ability to receive fresh water in aid from other countries. Both sides have shown that they are willing to target the water distribution of their enemies in order to achieve military victory. The breakdown in the water trucking service will mean that 30 percent of the population will be left without water. If this occurs, it is likely that many of the groundwater resources that were previously used for agriculture will be diverted for more domestic needs. This could have a catastrophic result on the agricultural output of the rural areas which are already suffering from famine.

The breakdown in rule of law due to the war has also caused the un-authorized drilling of wells and the haphazard use of the aquifer and groundwater throughout Yemen. Qahtan Al-asbahi states in his research that, “In some areas, particularly during dry seasons, supplementary irrigation is needed. Mostly surface and groundwater are used here for some other wheat and vegetable cultivations.” This shows that much of the groundwater is indeed needed for agricultural purposes. Qahtan Al-asbahi goes on to further argue that, “Many farmers are pumping groundwater from wells by using diesel pumps or electric pumps. Such wells can have different production volumes from one basin to another. Their production is between 5 liter/sec to 50 liter/sec. There are 52,000 to 55,000 active wells have been estimated in Yemen. These wells have a relatively low production. The volume of the water that is pumped every year from these wells is about 1.5 BCM.” While these farmers do need to support their crops, this haphazard assortment of wells has the potential to negatively affect the aquifer and groundwater because without government control, the water will not likely be utilized properly. As a result, crops may die because farmers are unable to coordinate with each other and aquifers water levels may decrease or dry up.

Another problem is the pre-war unregistered wells and drilling equipment used to drill these fifty thousand wells. Qahtan Al-asbahi explains that, “There are about 800 water well drilling rigs in use in Yemen that are owned by individuals or companies, who generally do not have any drilling permits, despite governmental legislation limiting the drilling of wells.” This is a problem because these rig operators drill wells based not on effective water management practices, but on who is willing and

able to pay them. This means that effective water distribution cannot be properly coordinated. Qahtan Al-asbahi also expounds on the problem of unlicensed rigs when he states “Recently National Water Resources Authority started a program of registrations & licensing for the water wells drilling companies the records shows only 70 rigs only are licensed, and 1000 wells only are registered and licensed till May 2005” This is a issue because only 70 rigs are licensed out of the total 800 rigs. In the Northern Mountain region of Yemen, many wells have been drilled. The Sa’da basin which provides most of the agriculture for the Northern Mountain region has seen an increase in tube wells. “The number of new tube wells drilled in the Sa’da basin climbed to 274 in 1984 . . . reaching an all-time high in 1986 when 287 new wells were drilled into the Sa’dda aquifer.” This is a problem because “[d]eep water well drilling and pumping continues effectively unregulated and beyond the sustainable limits of the resource.” Some wells may continue operations under unsanitary conditions because they have not been properly licensed. Compounding this issue is the lack of effective water management programs in the rural areas where agriculture continues to consume the largest amount of Yemen’s water supply. This could potentially lead to more wells spreading cholera.

It will take Yemen many years to restore their water supply to pre-war levels. As poor sanitation increases, more and more wells and other sources of water will be contaminated. This will lead to huge outbreaks of cholera which will add misery to the millions already feeling the effects of famine and war. The war directly affects the ability of the country to distribute water because water desalination plants are being targeted in missile strikes. Water trucking will likely be disrupted— leaving communities without the resources needed to access water. This disruption of the water system allows for illegal wells that could potentially drain aquifers and consume more water than is necessary for agriculture. This can cause the failure of crops and leave Yemen in dire straits in the future. It is thus necessary to bring the war to a swift conclusion in order to restore the government’s power in Yemen and to allow the proper sanitation and distribution of water.

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Sustainable Development Goals of Romania 2018

By: Cody Conklin

Cody grew up in a family of five boys in the small historical Town of Leesburg, Virginia. Cody lived in Leesburg, VA until he was 21 years old having received a call to serve a Christian mission in Las Vegas, Nevada for 2 years. After mission service was concluded Cody attended Northern Virginia Community College working towards an Associates in Information Technology emphasis in Cyber Security. After attending Northern Virginia Community College for 2 years Cody was accepted to attend Utah Valley University. Cody decided to enroll in a Bachelors Degree for Political Science emphasis in International Relations with a minor Information Systems. Cody was married to his wife Brigitta Conklin who is from Hungary in May of 2018, Brigitta attends UVU. Cody is employed full time as a Payroll Specialist and attends school part-time, he credits Utah Valley University and the faculty for his success and inclusiveness for non-traditional students.

Introduction to Romania

November 28, 2018, was marked with the celebration of the Great Union of Romania 100 years ago this year. In 1918 all majority Romanian provinces were unified under one Romanian state. Events leading up to modern Romania were characterized by war, revolution, occupation, and reform. Today Romania is a member of many multilateral organizations, and is organized under a democratic regime and government. Romania established its democratic government in a violent revolution which toppled the communist government under Nicolae Ceausescu in 1989. Romania has been a member of the UN since 1955 and was admitted to the European Union in 2007. Romania in the year 1999 was able to adopt Sustainable Development Goals (SDG) set the by United Nations.

SDG Goals and Romania

Sustainable Development Goals (SDG) were created as a “blue-print” for countries to follow which help them build a more profitable, healthy, and safe future for all. In 2015 many countries willingly took

upon themselves a resolution to meet 17 Goals for Sustainable Development. Romania voluntarily submitted the request to meet these goals as they were relevant to their needs. Romania is committed to reaching SDG targets in the following areas: health and protection of the poor and vulnerable communities, the safety of human cities, affordable and reliable modern energy, sustainable water management and sanitation, and protection of ecosystems and biodiversity. These goals were reviewed and researched, the findings were published this year as a high-level overview of their SDG goals.

The 2018 Voluntary National Review created by the Ministry of the Environment includes a foreword by the Romanian Prime Minister Viorica Dancila. Within this forward, she shares with us the purpose of the review “the aim of the present Voluntary National Review is to provide information on the Romanian preparation process and strategies for implementation.” Prime Minister Dancila continues to state its purpose, “It also underscores the commitment at the political level to create the optimal environment for public policies.” Vice-Prime Minister, Minister of Environment Leocadia Gavrilescu stated that they want to make Romania “sustainable and resilient,” she affirmed that the Voluntary Review proves Romania’s “strong commitment to multilateralism, sustainable development, and human rights.”

Logistics

SDG goals lie under the responsibility of the Inter-ministerial Committee. Arriving at this point took many years of organizing ways to implement these goals as well as the government organizations responsible. The Romanian Parliament in 2016 was the first “inter-parliamentary union” to support the 2030 agenda with a subcommittee for Sustainable Development in the Lower House. The Executive branch of Romania is an essential supporter as well. Romania decided to take a “holistic” approach to these problems yet moved slower because of their need to get support from relevant institutions. SDG goals are a vast topic which required Romania bring various parties together to educate and explain the national goals while acquiring experts that helped collaborate ministries, and by quantifying targets and indicators so they knew where to move forward.

Current Figures on Economy and Population

The Voluntary Review highlights Romania's 6.9% economic growth last year claiming that it was one of the largest in the world since the economic crisis which stimulated wage increases improving investment markets. Labor in Romania has also progressed by 3.1% when two years ago the unemployment rate was 4.9% (10). People employed between the ages of 20-64 was 68.9% which was 1.1% away from the 70% target in total employment (10). Since the financial crisis, Romania has GDP values above 5% annually. Romania is facing a shrinking population according to census data from 2002 to 2011 a total amount of their population has decreased by 7.2% (11). Causes of population decline are the following; low fertility, natural decline, and migration out of Romania as 2.4 million Romanians reside in other EU countries (11). It is projected currently that population levels will continue to decrease from 19.8 million people by 2035 to 17.3 million people by 2060 (11). Figures cited previously provide an important backdrop that highlights the need Romania sees for SDGs although an improving economy helps fulfill targets set an effort to shore up population challenges.

The UN knowledge platform advises nations to involve different stakeholders in implementation efforts. Romania has partnered with the World Health Organization (WHO) to reach Goal 3 of the 2030 agenda (Ensure healthy lives and promote well-being for all at all ages). A quickly aging population in the country is contributing to higher expenditures. Public health, health services, and a sustainable and predictable health system are paths for improving the health of Romanians. Six main areas of intervention involve improving health infrastructure by building hospitals, clinics, and emergency departments and updated emergency services. Improving capacity diagnosis and treatment through "telemedicine and e-health services" and initiating screening programs that we commonly see in the US. Improving access to essential medicine, requires Romania to create career pathways for medical professionals to produce talent, while creating health programs to that move from care to prevention.

Leave No One Behind

"Leave No One Behind" is a slogan for the inclusive vision of transformation, to make sure that the most vulnerable are taken care

of. According to Romania, those who are vulnerable are individuals and communities who are at risk of poverty or social segregation. Romania is trying to provide health services for everyone, which includes improving the health of the Roma population. To help this vulnerable community, 45 community centers have been developed in these poor areas and staffed with community nurses and health mediators. Funds and training have been set aside to develop teams to identify vulnerable children and provide access to services. These initiatives will help to achieve agenda Targets 3.1-3.8 in other words, Goal 3, set by the UN in order to improve global public health, maternal mortality rate, disease treatment, access to health care, substance abuse treatment, and communicable diseases.

Because mountainous communities are one of the poorest among us, Romania implemented a Sustainable Mountain Development law in Parliament in November 2018 titled; Law of the Mountain. In this law, the Romanian government acknowledges mountain community disadvantages based on rugged terrain, high altitude, high costs of business, and limited education and medical access. They seek to create sustainability by targeting “specific economic activities,” preserve traditions, and cultural identity. Loss of income and other costs made by farmers will be compensated as Romania implements measures designed to support extensive management such as; biodiversity conservation, water and soil conservation, and infrastructure development. This will make sure that farmers and other mountain civilians do not experience adverse circumstances. The law provides a higher standard of public services in mountainous communities that will bring greater “quality of life” to the people. These provisions include medical, social, transportation and technical services. These initiatives are apart of a broader effort to make sustainable development more “inclusive” to their mountainous community.

Clean Water and Sanitation

The mission of SDG 6 is to “ensure availability and sustainable management of water and sanitation for all.” During the High-Level Political Forum on Sustainable Development on July 8th, 2018, Romania issued a statement by Constantin Dan Deleanu from the Ministry of Waters and Forest. Deleanu explained that European Union (EU) directives already mandate drinking water and waste manage-

ment. The financial cost for Romania was estimated at 15 billion euros at the end of 2018 (2). Supplies of drinking water for the majority of the country is already connected to a network, however, there is an improvement to be made in rural areas. Wastewater treatment plants have also grown extensively in recent years. The Ministry of Waters and Forest sees the need to increase infrastructure investments and public education of preservation of those resources (2). In 2016, only 65.4% of the population was connected to public drinking water. After that statistic was released, the Voluntary Review admitted they were the least developed country in this goal.

Energy and Consumption

Access to affordable, reliable, sustainable and modern energy for all, otherwise known as SDG Goal 7, is one in which Romania has uncapped potential to build on. Romania has high levels of energy security and independence unlike countries positioned to the west and the rest of Europe due to many natural and geographic resources available. The Voluntary Review acknowledges that their consumers expected the energy sector to become cleaner and technologically more advanced (41). Romania seeks to diversify its energy resources from coal and oil, and hydroelectric power by renewing power generation plants to be more advanced while utilizing rich wind and solar resources. Transitioning to biomass sources and renewable energy for household heating is a strategic goal, the government will continue to support the use of less polluting sources. In years from 2000-2011, Romania achieved a 25% reduction in CO₂ emissions because of policies placed on renewable resources such as sunlight, winds, flowing water, biomass, geothermal and usage of different technologies. These emissions decreased mainly in electricity, heat production, and road transportation.

Between the years 2000-2015, energy consumption was “well under” the European totals. This data shows that Romania’s efforts to avoid energy waste was accomplished in a very positive way (47). To better illustrate this, energy consumption data was recorded between 2000-2015 in European countries. Germany’s consumption of energy was recorded between 200-250 million tCO_{2e}, while Romania never reached the EU average (roughly 40 million tCO_{2e}) (48). Promoting better consumer information about renewable sources, promoting the

benefits of diminishing costs and increasing energy safety is part of the strategy (51). The Voluntary Review affirms the need for a “regional partnership with neighboring countries in the sustainable development of energy production” because of challenges and vulnerabilities that they foresee (52). In the review, Romania highlights the importance of EU and USA investments and trade partnerships as part of their goal (53).

Sustainable Cities and Settlements

SDG Goal 11 states a vision in which cities and settlements will be “inclusive, safe, resilient and sustainable.” The UN reported in 2016, “91% of the urban population worldwide were breathing air that did not meet WHO’s guidelines... an estimated 4.2 million people died from high levels of air pollution.” Romania supports the idea of a “smart city” as a collection of services and networks that make city life more efficient by integrating information systems into the infrastructure as a way to fight these challenges. The Voluntary Review stated that “smart management” of a city comes in the following ways but not limited to; sorting of waste, “smart tap” avoidance of water waste, electronic recycling, replanting trees, automotive usage reduction, no noise emission, modern lighting solutions (54). In response, a safe, inclusive, efficient city forms in the following ways; respect for the environment and community members and law, responsible use of resources and recycling as the new source, reduced dependence on non-renewable sources.

“Oradea City Strategy for Informatics 2016-2020” is the name of a plan that pushes the city of Oradea into a digitized city. The creation of the Oradea City App connects users to information about tourist locations, audio guides, hospital information, ATMs and pharmacies, and connection with public transport. This app also links citizens with operators and public institutions for complaints and incidents for reporting. Romania is moving to a more interconnected municipality in order to keep citizens and officials connected not only for security and openness, but also for social connection. Romania attributes modern housing and economic growth as one of the catalysts of improved living conditions. Target 11.1 was reached by Habitat initiatives which helped over 69,000 people since 1996, by providing housing and renovations of homes which reduced disaster risk and exposure.

Production and Consumption

Achieving sustainable consumption and production patterns under SDG Goal 12 includes a 10-year program for developed countries to achieve. Since the 1990s, Romania's GDP has gone from 124 billion to 198 billion in 2016. With an increasing GDP, the country needs to learn how to manage this continued growth. The industrial sector is a large polluter, however, in 2015, statistics showed the number of companies were in a slow decline. Romania assessed its consumption of resources and its impact on the environment by the NSDS. In 2008, the report stated that adding new economic policies will lead to "3-4% annual increase in physical and energy resource productivity during 2008-2030." The policies suggested are as follows; improve capacity of authorities to implement the laws on green public procurement, expand labeling of products to show the environmental effect of selling those goods or services, stimulate green investments in production, and innovation and resource efficiency. Romania reached Target 12.7 by setting up this legal framework. Romania focuses on management of waste and hazardous waste and they are currently formulating strategies under a National Waste Management Plan to work on this target. Another process to reach sustainable production is through the means of organic farming. Romania wants to increase the total cultivated area of organic farming. One of the ways to do this is to promote organic farming through national and international events and overall revamp organic farming's image in the public.

Ecosystems: Mountains and Forests

Protecting our terrestrial ecosystems, sustainable forests, reversal of land degradation and pushing back against biodiversity loss is the main purpose of SDG Goal 15. On the UN website, it described Romania's biodiversity "unique and generous... through all the levels of the ecological systems." Romania's current threats include infrastructure development, human settlements, overuse of natural resources, invasive species, and contamination from pollutants. Regarding these challenges the country has organized a "regime of protection, conservation" The law on Sustainable Mountain Development contained multiple items which move the actions of the government to strengthen biodiversity and promote a healthy mountainous development.

The law requires setting up pastures and directs transformation of arable land into meadows in order to prevent negative impact. The law “prohibits” the collection of waters, brooks and streams being used for “micro-hydroelectric plants” to ensure water availability for domestic and wild animals. The law also gives provisions against soil degradation in order to create balance and sustainability for the land used for agriculture. The Romanian government will help these areas of land to be protected and in cases of private property, owners will receive compensation for complying with these proactive measures. Protecting Romania’s forests is a high priority, the country implemented legislation and strengthened the ability to control what happens in forests to fight forest degradation from illegal logging. A plan was implemented called the SUMAL , a network of IT applications helping authorities to fight illegal logging and reduce forest crime. Implementation of technology and bolstered legal frameworks assisted Romania in getting closer to these goals that protect ecosystems.

Conclusion

Romania has been able to make great progress in the area of Sustainable Development. Like many other countries following these goals, there is still much that needs to be done and not all aspects could be covered in this report. Romania believes that with the increased environmental awareness in recent years, greater cultural awareness in these issues has arisen allowing for a greater capacity of change in positive directions. In the spirit of these efforts, President Klaus Iohannis during Romania’s 100-year celebration called on his citizens to build a “democratic and European” future for the country with Romania as a potential strong leader . Romania understands that that Sustainable Development Goals will not only help themselves in the future but also to further cement its democratic roots and become a strong democratic example not only to its neighbors, but also on the world stage.

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Importance of the Mountains in Saudi Arabia

By: Byan Alghanmi, Abdulaziz Alaseery, and Abdulrahman Alghanmi

Byan Alghanmi is an international student from Jeddah, Saudi Arabia. She has a scholarship and sponsored by Saudi Arabian cultural mission to get a degree in Criminal Justice. Byan believe that diversity is the most important element at any university and that is why she chooses Utah Valley University.

Abdulaziz Alaseery is from Abha which located in the south of Saudi Arabia. He moved to Utah since 2014. Abdulaziz is studying Political Science Peace and Justice program at the Utah Valley University. He became passionate about international studies, India studies, and Middle Eastern studies with encouragement from professor Baktybek Abdrisaev. In his free time Abdulaziz likes to read books about history and politics.

Abdulrahman Alghanmi is an international student from Saudi Arabia. He is majoring in Political Science at Utah Valley University. He started learning English in 2014 at Internexus school in Salt Lake City. By 2016 he finished his English school and went to Salt Lake community college. Then he transferred to Utah Valley University to get his diploma from there.

The Country of Saudi Arabia

Saudi Arabia is a country that extends across most of the central and northern Arabian Peninsula. It is a young country which was established in 1932. The western highlands that are along the Red Sea have Medina, Mecca, and Hejaz (site of the region's holiest city). Najd highland is a region that is located in the geographic heartland of Saudi Arabia. It is a vast arid zone that has been populated by nomadic tribes until recent times. Since the 1970s, Saudi Arabia's abundant oil fields that are located along the Persian Gulf to the east have enriched the country with petroleum wealth. Saudi Arabia's subsequent history has therefore been fueled by three elements: untold wealth, religion and tribalism.

The geography and weather of Saudi Arabia varies across the country. Saudi Arabia covers an area of about 865000 square miles. Its

size is about one-third of that of United States' area. The size of Western Europe is the same as that of Saudi Arabia. The country is located in the Middle East, and borders Iraq on the northeast, Jordan on the north west, Qatar, Kuwait, Bahrain and the United Arab Emirates on the east. It is also surrounded by Yemen on the south, the Red Sea on its west, Oman to its southeast and the Persian Gulf on its northeastern side.

The climate in Saudi Arabia is very hot. Most of the country is a big desert. slight and erratic rainfall happens as well when temperatures drop at night. It is also cold and rainy during the winter and hot and dry during the summer. However, the middle region of Saudi Arabia has a regular climate. It has an average temperature of 45 degrees Celsius during summer although the readings of up to 54 degrees Celsius are commonly experienced. Temperatures never go below zero degrees Celsius during winter. However, there is a bitterly cold atmosphere due to the high wind-chill factor and the complete absence of humidity. The temperatures average 29 degrees Celsius in the autumn and spring. Indian Ocean monsoons usually occur between the months of October and March yearly and are subject to the region of Asir. During this period, there is an average rainfall of 300 millimeters, which marks 60 percent of the total rainfall annually. The total rainfall is caused by condensation in Asir and Southern Hijaz as a result of high mountain slopes. There may be one or two outbursts of torrents led by the entire annual rainfall. The torrential outburst floods the gullies, also known as wadis, and disappears rapidly into the soil for absorption at the impervious rock (Saudi Students' Association).

Mountains of Saudi Arabia

Saudi Arabia Mountains are part of the country's land, with four-fifth of its area occupied by the Arabian Peninsula. The land has experienced long-running border disputes that were nearly resolved with Qatar (2001) and Yemen (2000). As a result, the border currently shared with the United Arab Emirates have never been defined. Saudi Arabia and Kuwait administer an equal portion of the territory. They also share the entire area's oil production equally.

In addition, some of the mountain peaks are taller than others. The tallest peaks in Saudi Arabia are housed by Sarawat Ranges which are located in the Asir Region. Besides Jabal Al Lawz, all the peaks in Saudi Arabia that are above 2500 meters are found on Sarawat mountains.

They include Jabal Khanaqah which is 2850 meters above sea level, Jabal Moushref whose elevation is 2837 meters above sea level as well as Jabal Nahran (2837 meters above sea level) (World Atlas, 2018).

The mountains in Saudi Arabia are quite important to the existence of many living creatures, including human beings. The mountains serve the country in many ways including tourist attraction, sources of food, sources of herbs, a habitation for species in an ecosystem, mining and other geographical activities, farming, praying and worshiping among others. Every mountain and peak has its unique features.

Mount Hira with Jabal Hira (Jabal al-Nour) is located in Saudi Arabia at the region called Hejaz. It is located just outside of Mecca approximately two miles from Kabah. The mountain is also called Jabal Noor, which means the mountain of light. It was named according to the light it showed for the sake of many Arabian people. According to the community, Allah called them to believe in him. The Hira cave, which is a small cave near the top, is about 642 meters up the mountain. The mountain is rocky and steep and it takes the Arabs about 20-30 minutes of hard climbing with a hot climate in Arabia to reach its top. However, the cave which is at the mountain peak can only hold one person at a time.

The mountain of Hira is well known, as the place where Prophet Mohammed received his first revelations of Holy Quran during Ramadhan in 610 CE. He received the revelations from Allah (the glorified and exalted) through the Angel Gabriel in the cave of Hira. First, he began by the revelations of good dreams that were true. He then started to like solitude and could meditate in solitude at the cave of Hira for many days and nights. At the age of forty years, he used to contemplate the meaning of life. Prophet Mohammed also took provisions to stay for a longer period. He would stock up and return to the cave upon returning to Khadijah. He continued with this practice until he an Angel revealed the truth to him while in Hira cave. Historically, the people of Mecca worshipped pagan idols before prophet Mohammed went to pray at Hira. Luckily, his retreats into the cave gave him an opportunity to reflect freely without fear of retribution by the society. He could also doubt and question his own people's beliefs.

Hejaz is the biggest mountain range. It houses the holiest cities in Madi-nah and Mecca. It also acts as a barrier between the Arabian Peninsula's

interior and the Red Sea coastline. The highest mountain in Saudi Arabia is called Asir/Aseer. It is located in the western part south of the country. Asir/Aseer has a unique culture and it means hard/ rugged. Historically, it is not only known for its location in a remote area but also for being the greenest area in the kingdom of Saudi Arabia, beautiful with cold weather and snow (Abdullelah, 2017). Indeed, the best mountains in Saudi Arabia are in southern and western regions by the Red Sea. On top of the mountains there are whole towns as the places are quite green with a cool climate. This place is unique compared to all the other places in the MENA region and the Arabian Peninsula (Qasim, 2017).

The Sarawat, also known as Sarat, is a mountain range that runs parallel to Arabian Peninsula on the western coast. It is one of the most prominent geographical features in the Peninsula. The Sarawat Mountains begin from the northern side of the border of Jordan to the southern side of the Gulf of Aden and runs through Yemen and Saudi Arabia. The ranges in the northern half, called Sarat al-Hejaz hardly rise about 2,100 meters above sea level. However, its middle is the largest mountain range in the Arabian Peninsula. In most places, the mountains are rocky while some of them contain evergreen vegetation. Many of the peaks are jagged and fairly young, although some are smoother than others from weathering. The northern part of the ranges runs from the northern Taif through the west of Saudi Arabia up to Saudi Arabia's southern tip. Some people argue that the mountains of Western Syria and Lebanon are part of the chain. In most cases, it is a higher elevated area than the rest parts of Saudi Arabia, except Asir. Obscure landforms can also be found in the chain. The average of elevations is around 1200–2000 meters but the highest points are approximately 2400 meters above sea level.

After Medina, the chains of the mountain disintegrate and then reappear around Taif. Beyond the south and below Taif is Asir Province in Saudi Arabia. This part of the Sarawat Mountains looks like a large cliff climbing out from the coastal plain of Tihamah. At its beginning, the Sarawat spreads into individual peaks while the Hejaz begins from a cliff to gradual ascent and thereafter to the Yemeni Plateau. Yemen is a habitat for all the mountains whose heights are over 3,000 meters. The highest of them is Jabal an-Nabi Shuayb, and is also the highest peak in the Arabian Peninsula with a height of 3,666 meters high. It is located near the Sanaa capital. The Sarawat are part of the Arabian Shield geologically and mostly consists of volcanic rock (Hijaz mountains Library of Congress Country

Study, Saudi Arabia).

Jabal Thawr (Thawr Mountain)

The Thawr mountain with Jabal Thawr is located at the end of southern Mecca and it is above sea level by 760 meters. During their migration to Madinah, prophet Mohammed (May the peace and blessings of Allah be upon him) and Abu Bakr (may Allah be pleased with him) took refuge in the cave of Thawr from Quraysh. Prophet Mohammed and Abu Bakr lived in the cave housed by Jabal Thawr Mountain for three days and nights. It was during their migration to Madinah when they fled persecution from the Quraysh. The cave of Thawr (Ghar al-Thawr) is believed to be the place where prophet Mohammed once lived. Therefore, the people of Quraish entered there until they were no longer able to. That was after a spider was commanded by Allah to spin a web from the nearby bush across the cave's entrance. Allah also commanded two doves to make a nest and lay eggs between the tree and the spider after flying above them. Therefore, the pursuers thought that it was impossible to enter the cave unless someone could ruin the spider web. They only watched from a distance close to the cave's entrance.

Jabal Al-Qarah is another peak mountain which means mountain of Al-Qarah. It is a mesa standing at about 75 meters high. It has a maximum elevation of approximately 225 meters above sea level. It has many caves and the air inside is very cool. Its caves were formed by subaerial weathering than dissolution, unlike many caves. As a result, their shape is highly distinctive. The mountain attracts many residents from both the nearby villages and those that are far away. It is a tourism site and many people visit the peak daily for recreation. Due to this, the government of Saudi Arabia targets the site for additional tourist development as a source of income revenue for the country. Tourists from other countries are charged for entry into the peak. The money goes directly to government revenue for national development. Jabal Al-Qarah is an outlier of the larger Shadgum Plateau but the surrounding places have no other hills (A. Edmon, 2018).

The Habala Mountains are quite significant mountains and act as a home for humans. Habala Mountains straddle Saudi Arabia's southern border. One of the groups that live in the mountains is the flower men of Saudi Arabia. It has now been 2000 years since they started living in

the remote mountain fortress in the foothill of the mountains of Habala in Saudi Arabia. The men wear floral garlands which are good looking and colorful, and make them smell nice when the heat is intense. Besides loving flowers, the tribes are violent and notorious. Some of them are so dangerous that even the police of Saudi Arabia are scared of them. The police hardly enter their villages. They are engaged in cross-border battles in addition to violent reaction in case outsiders come on their way unwillingly.

The Sawda mountain of Saudi Arabia has a peak known as Jabal Sawda. It has an elevation of 3000 meters above level. It is the tallest peak in Saudi Arabia. It is located in the Asir on a high plateau. Most of the rainfall in Saudi Arabia is received by Asir. Its nearest city is Abha. Jabal Sawda peak is part of the Sarawat Mountains that are parallel to the western coast of Arabian Peninsula. The mountain range is the largest in the Arabian Peninsula. It has rocky mountains but some of them contain vegetation. The vegetation acts as a source of food for many people and wild animals found in the region. It also helps in the ecosystem as all the living creatures are fed accordingly.

Another mountain is Jabal Ferwa, and has an elevation of 3004 meters above sea level. This is the second tallest peak in Saudi Arabia. It is also a peak in Sarawat Ranges in the region of mountainous Asir. Its nearest city is Al-Harjah. The highest amount of rainfall in Saudi Arabia is received by Sarawat mountain ranges. The region also receives late heavy rains during the spring as well as light afternoon rains during summer. They have fertile soils mostly on the slopes of the mountains. The residents and people from the nearby regions use the land for cultivation. They plant different crops, trees, and grains including cypress, acacia, lotus, evergreen juniper, and wild olive. Wild animals are also attracted by the vegetation. Some of the animals are extinct while others like deer, rabbits, the mountain goats, and baboons are rarely found at the vegetation. To date, wolves and leopards roam around the terrain. A variety of bird species like eagles, Egyptian vultures and falcons are also benefitted from life in the mountain ranges.

Ecological Aspects

Generally, the desert, temperate and tropical climate of Saudi Arabian kingdom make it unique to harbor many reptile species. It is also

made possible by the extreme variations of its climatic conditions. Together with other resources, biodiversity is a basic natural resource as well as the most important in the recent and current era in Saudi Arabia. Biodiversity differences include aquatic, marine and terrestrial environment. The mountains in Saudi Arabia improve biodiversity as they are the habitats of most ecosystems. The animal and plant species are mostly found in the mountains especially at the caves and rocks.

The kingdom of Saudi Arabia emerged as a signatory of a convention of biological diversity which ensures conservation of species as well as their habitats at all times (Abu Zinada et al., 2004). As a result, the importance of biodiversity in the world awakened recently. Saudi Arabia put emphasis on biodiversity not only among the country's citizens but also on the entire world. More than one hundred and fifty countries signed the same convention in Rio de Janeiro in 1992, as a way of acceptance and confirmation (Masood, 2012). Furthermore, more ecosystem and biodiversity studies have been done in Saudi Arabia to improve the living conditions of a variety of species. Some of the recommendations have been made to protect areas in the mountains and valleys for better preservation of species, enable citizens to use natural resources, appropriate administration procedures, enhance protection in some areas and patrol them on a regular basis, and further study biological diversity of all species.

According to a study conducted to give a preliminary account of the fauna fly in Saudi Arabia at Jabal Shada al-A'la about Diptera, Insecta, the first insect list in AL-Baha was published in 2013 with a total of five hundred and eighty-two species. According to the present study, a total number of 119 Diptera species that belonged to 31 tribes, 87 genera, 42 subfamilies, and that represented 30 families had been recorded from Jabal Shada al-A'la Nature Reserve. For the first time, fourteen of the species were recorded in Saudi Arabia. They included: *Stomoxys niger* Macquart, 1851 [Muscidae]; *Saropogon* sp. [Asilidae]; *Phycus* sp. *Chaetosciara* sp. [Sciaridae]; *Neolophonotus* sp.1; *Neolophonotus* sp.2; [Therevidae]; *Forcipomyia sahariensis* Kieffer, 1923 [Ceratopogonidae]; *Promachus sinaiticus* Eflatoun, 1934; *Saropogon longicornis* (Macquart, 1838); *Spogostylum tripunctatum* (Pallas in Wiedemann, 1818) [Bombyliidae]; *Hemermomyia* sp.; *Meoneura palaestinensis* Hennig, 1937 [Carnidae]; *Desmometopa inaurata* Lamb, 1914 [Milichiidae]; and *Sarcophaga palestinesis* (Lehrer, 1998) [Sarcophagidae]., The south-western part of Saudi Arabia in this case Al-Baha Province and the Arabian Peninsula, is probably the

most important part of Saudi Arabia in terms of speciation and vegetation. Ecologically and florally, the area is similar to the high altitude mountains of eastern and north-eastern parts of Africa and contains evergreen shrub lands and mountaine woodlands, with strong Afromontane affinities like some of the areas in the south-western part of the Arabian Peninsula, (Bussmann and Beck 1995; Zohary 1973; Eig 1938). The mountains and the hills found there are mainly the habitats of those species which can easily be found and located at any time but mostly in the evening hours. The mountains in the Arabian Peninsula are very significant to the ecosystem as the species cannot survive without them.

El-Hawagry et al. (2013, 2015), attributed the interesting insect fauna and the extraordinary complex in Al-Baha Province to its geographical position at the junction of two of the world's main zoogeographical regions, the Palaearctic and the Afrotropical. According to many bio-geographers in the present day, the biogeographical divisions within the northeastern and the eastern parts of Africa should be extended towards the east within the region of Arabian Peninsula, hence covering the high altitude regions of the southern Al-Sarawat Mountains (Afromontane Archipelago) (Zohary 1973; Eig 1938).

Conclusion

The country of Saudi Arabia is enriched with mountains and peaks that are located in most of its regions. They are of great significance to the residents as well as all the other living creatures in the surrounding areas. The mountains are the sources of food and water for most organisms and people in various regions. Some of them are also sites for recreation and worship. For instance, the cave at Mount Hira has been a sacred place since Prophet Mohammed visited it for many occasions to intercede for his nation. He pleaded with Allah to change the people's way of worship after he got a revelation from God through Angel Gabriel. In addition, most mountains in Saudi Arabia have led to economic development. They are the sources of tourist attraction to the country and are used by the people to rest and worship. The mountains have also improved international cohesion around the globe. The fact that tourists from all over the world visit Saudi Arabia to see mountains and peaks enhances relations with other countries.

However, the services offered to people who are willing to visit

mountain areas in Saudi Arabia can be challenged by some of the traditional and religious beliefs among the local communities, like in case of the the cave's entry at the mountain of Hira. In addition, the local tribes that live at mount Habala with violent and notorious character make them intimidating factor even to the police. Therefore, any willingness by the government to develop the region could go unimplemented. Because of this the region near mount Habala goes on the list of the most undeveloped part in Saudi Arabia. Such challenges drag the country behind at a high level.

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Section 4

Student Essays

Mount Elgon and It's People

By: Titus Elanyu

Titus Elanyu is a senior at Utah Valley University (UVU) studying Political Science and Government with an emphasis in World Politics. Titus is originally from Uganda which, named by Winston Churchill, as “the pearl of Africa.” He came to Utah to pursue a higher education and to gain international exposure and experiences. He has found UVU to be a true fountain of knowledge and a place for learning culture and global unity which is critical for the future of world peace. Titus was born in 1990 in Kenya, a country where his parents were refugees because of the turbulence of Uganda at that time, then his family returned to Uganda in 1991. Titus’ father has carried different positions in the Uganda government and is currently the State Minister for Relief and Disaster Preparedness. This has given Titus the opportunity to know and visit many parts of his country and interact with Uganda’s people. He loves politics and enjoys political debates, charities, and enjoys performing acts of compassion. He finds a lot of pleasure in serving people and communities in distress and especially supporting and working for less privileged societies.

Abstract

Mountain Elgon is both beneficial and a threat to the inhabitants. The rich agriculture, water distribution and beauty of this region makes the area a desired location for visitors and locals. The challenges people in this region face include: accessibility to appropriate healthcare, opportunities for lower-level and higher-level education, and social distribution of public goods and services like roads, electricity and water. These resources continue to be difficult to deliver to the mountain communities. Furthermore, the nature of the mountain and historically, Mountain Elgon is known as affected by natural disasters (e.g. flooding and landslides). The latest disaster affecting the communities around the mountain occurred in October 2018 making Mount Elgon’s threats recent and notable.

Introduction

Mountain Elgon is an extinct shield volcano located on the border

of Uganda and Kenya, north of Kisumu and west of Kitale. This mountainous region is home to a large community of multiple villages. The mountainous terrain and seclusion from other regions introduces challenges to its occupants including crop maintenance, natural disasters, poor road networks, extremely high construction costs, and non-appropriate cultural practices. However great the challenges are that the mountain people face, their rich soils and beautiful landscape are vital to Uganda and its citizens.

The mountain's highest point, named "Wagagai", is located entirely within Uganda. Although there is no verifiable evidence of its earliest volcanic activity, geologists estimate that Mount Elgon is at least 24 million years old, making it the oldest extinct volcano in East Africa. Mount Elgon is a massive solitary volcanic mountain on the border of eastern Uganda and western Kenya. Its vast form, 80 kilometers (50 mi) in diameter, rises 3,070 meters (10,070 ft.) above the surrounding plains. Its cooler heights offer respite for humans from the hot plains below, and its higher altitudes provide a refuge for flora and fauna. The mountain is also the catchment area for the several rivers such as the Suam River, which becomes the Turkwel downstream and drains into Lake Turkana, and the Nzoia River and the Lwakhakha River, which flow to Lake Victoria.

Local ethnicities

Mountain Elgon and its tributaries are home to four tribes, the Bagisu, the Sapiinjak, the Sabao, also known as the Elgon Masai and the Ogiek, better known in the region under the derogatory umbrella term Ndorobo. Bugisu sub-region is in Eastern Uganda and consists of the following districts: Bududa District, Bulambuli District, Manafwa District, Sironko District, and Mbale District. The sub-region is home mainly to the Gisu people, also called Bagisu, (singular is Mugisu). The Bagisu speak Lugisu, a dialect of Lumasaba, a Bantu language. Lugisu is very similar to the Bukusu language spoken by the Bukusu people of Kenya. According to the 2002 national census, the Bugisu sub-region was home to an estimated one million people at that time.

Not only is Mount Elgon culturally diverse, it is also agriculturally diverse. The volcanic soils from the slopes of the mountain are extremely good for crop production. That is why Mount Elgon is home to Arabica coffee and crops like maize (i.e. corn) which is good for human and animal

feed. Elgon Sub region is an agricultural food basket, its primary crops grown include: millet, cassava, peas, beans, sweet potatoes, simsim, sunflower, cotton, onions, rice and maize. Cassava and rice are the priority crops for the dry and wet areas within the region. In addition, there is also a significant level of livestock farming in the area with cattle, goats, pigs and poultry as the leading livestock species kept in the region. This region boasts a very rich culture and agricultural potential. Worth noting is its rich cooperatives union that brings together coffee growers and producers in the region.

A Major Asset to Our Country

This old dormant volcano, Mt. Elgon, is an asset and a critical source of livelihood to millions of human beings and animals. The mountain is a source to a number of rivers that sustain life in what is called down stream districts and countries. For example, two rivers emerging from Mount Elgon, River Manafa and River Malaba, join into river Mpologoma which eventually pours into the Nile at some spot in Lake Kyoga. This proceeds flowing through West Nile, Republic of South Sudan, Republic of Sudan, and finally through Egypt and into the Mediterranean Sea, sustaining millions of lives. In another example, River Suam which also originates in Mt. Elgon, runs through two countries Uganda and Kenya. It pours its water into Lake Turkana in Kenya and sustains millions of people who are traditional cattle keepers (nomadic communities) which includes the Pokot and the Turkana.

It is important to note that these people live in a semi-arid environment, and therefore River Suam is a critical lifeline for them, making Mount Elgon a essential source of water to these communities. Mount Elgon is also significant because its' rivers provide water for irrigation for districts around it. For example, Doho irrigation scheme in Butaleja district benefits from Mount Elgon and in the process sustaining very many farmers. These arrangements are a source of income and food security for these farmers. The beautiful mountain is also home to the famous Sipipi Falls which is a spectacular panorama of falling water in River Sipipi. Hence Mt Elgon is a big destination for both domestic and international tourists.

Human Activities on the Mountain

The mountain once boasted very green vegetation which included the Elgon thick trees and the bamboo trees. However, over the years the ever increasing population has harvested almost all the trees. This has heavily degraded the mountain making it very susceptible to vagaries of climate change as a consequence.

Landslide Challenge

Landslides are a downward movement of rock material and soils by gravity. In Uganda landslides have been reported in the mountainous areas of the east and west around the Mountains of Elgon, Mufumbiro and Rwenzori where there has been deforestation on steep slopes. Landslides in the Mount Elgon areas occur mostly in Bududa and Sironko Districts. Bududa District has been affected by these landslides, including the deaths of locals, many of which were never reported. Landslides in the Elgon Region are disasters that have caused suffering to the population, massive destruction to homes, infrastructure property, animals, and lives.

In March 2010, a district of Butaleja suffered a flash flood, because of heavy water flow from Mount Elgon flowing into River Manafa, which broke its banks and in the process destroyed homes and farms along the way. This caused close to 200,000 people to be at risk of starvation and were internally displaced (IDPs). The government of Uganda, the Uganda Red Cross and the other International NGOs (Non Governmental Organizations) rushed to deliver emergency relief to the affected communities. This relief included food and non-food items (e.g. blankets, mosquito nets, and other hygiene kits).

Recently in October 2018, another landslide occurred on Mount Elgon which resulted in a death toll of over 40 people. The natural climate of the region included high levels of rain. Major downpours occur frequently during rainy seasons. The threat of continual landslides is significant, however people in the local communities continue to rebuild and stay in the dangerous location.

Challenge of Flooding

During rainy seasons, flooding in some parts of Bulambuli and Sironko districts create floods and landslides, which are the causes of the displacement and its negative consequences in the region. The population

shelters themselves in schools and health centers hence distorting the provision of these key social services in the area. On the March 1, 2010, a major landslide killed over 150 people in Namesi village in Bududa district. This happened in the late afternoon after a heavy downpour which lasted over 4 hours. It caused the water saturated soil to roll down and cover homes in the villages, including burying a health center, killing workers, and the patients in the health center. The whole world was in shock and extended condolences and words of sympathy to the government and the people of Uganda. The government of Uganda relocated over five thousand survivors to a government owned land some distance away from two mountains into a district called Kiryandongo where they are now living in their new homes.

Education Sector

Education Sector in Elgon Sub region has been directly affected by both floods and landslide occurrences, which not detracts from the school's curriculum and make students miss class, but has also affected the infrastructure due to sever damage to classroom buildings and bridges. This clearly shows in the ever regressing results for both PLE (Primary Leaving Examinations) and UCE (Uganda Certificate of Education) exams.

The government also finds it difficult to construct schools in some of the steep slopes in the mountains and yet these places are home to many poor local communities. This lack of education perpetuates poverty and backwardness among the communities that dwell in the slopes of the mountains. Often leading to population explosions because of the lack of education regarding family planning and spacing children out.

Healthcare and Terrain Challenge

Healthcare infrastructure in Elgon Region has been greatly affected by floods and landslides because health centers are being flooded, and others buried. This directly impacts healthcare services in the region, yet a number of epidemics also crop up due to the displacement of the population when disasters occur. Diseases such as malaria, dysentery and cholera are common in Elgon Region.

The difficult terrain also inhibits the government from construct-

ing adequate health facilities in the steep slopes where many communities live, which has a serious impact on the health burden of the people in that region. Hence the reason for high maternal mortality rate in the mountains. Many women die while giving birth because they deliver at home and not in health centers under the care of professional medical personnel.

Personally I have not lived in rural Uganda unless I was visiting with my parents as a child due to my father being a Government employee. Hence we lived in different towns of Uganda as my father would be transferred to different locations in the country. But I know the few times we went to our rural home, the roads were almost non-existent and a reliable clinic was about 20 km (about 12 miles) away from our rural home, making it hard for an emergency case to survive. I also noted that there were no ambulance services in any rural areas in Uganda and even when there is, the response time is non-effective. The good news however is that there has been some consistent change over the years. The government is now fixing major roads as they can, while the local governments are being helped with equipment such as graders and excavators, sent from Japan, to help with fixing rural roads.

Due to the mountainous setting in Elgon region, the terrain is such that many areas are inaccessible, hence making it difficult for the population to access social services like health and education. It is also true that even the distribution of the infrastructure is largely affected by the terrain where some places lack schools and health centers because of the unfavorable landscape.

Cost of Construction

Because of the mountainous terrain, the cost of construction in Elgon region is very high, hence making it difficult for the poor to own permanent houses leading them to live in shacks.

The terrain also makes it difficult for government to make good roads up in the mountain. The roads are still marram i.e. not paved with bitumen and are seasonal. In other words, during the rainy season they become impassible because the soils get water logged. This makes movements including riding bikes extremely difficult or in some cases impossible during rainy season. This is problematic as well because riding bikes is a popular mode of essential transportation. This makes it difficult for the communities to

easily access markets with their produce e.g. coffee etc. It is important to note that the poor road network in the mountains makes it difficult for the government to also enforce law and order in the mountain slopes – this makes the place sometimes a safe haven for criminal elements who can easily be fugitives from justice.

Conclusion

It is important to note that in all these challenges women and girls suffer the most since it is survival of the fittest in the Elgon mountain region. The men easily manipulate the environment to their advantage leaving women and girls discriminated and left behind in many aspects of development. The women suffer the burden of child bearing in an environment where there are no adequate facilities. Girls miss out on education since they may not be able to cross valleys to reach the available schools. They are also treated as “beast of burden” since it is their duty to engage in production of food crops when the male just sells the produce and uses the money for what they see fit. It is also in this mountain, that the backward practice of female genital mutilation “female circumcision” still exist, although the government and other development partners are trying to fight the practice.

Lastly, Mount Elgon is both an asset and a challenge to its inhabitants. The challenges range from health of the people, education of the people, and social delivery of infrastructure like roads, electricity and safe water. These resources continue to be difficult to deliver to the mountain communities. However, government and the international community must continue to make concerted efforts to ensure that these communities are also served, and they must also benefit from the dividends of our civilization and development.

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