Consilience: The Journal of Sustainable Development
Vol. 19, Iss. 1 (2018), Pp. 69–81

Investigating the Global and Local in Wangchuck Centennial National Park: A Case for the Bhutanese Conservation Actors In-Between

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Abstract

Bhutan is world famous for its approach to both environmental conservation and development, despite being classified as "least developed" by the World Bank as recently as 2016. As Bhutan continues to develop, it has increasingly encountered the colloquially known, but statistically unproven phenomena: that development standards and conservation goals are often in conflict with the needs of rural communities. In the case of such ideological, cultural and economic clashes, this article argues for the necessity of "middle-actors" such as native Bhutanese civil servants, as they are able to navigate the cultural and economic zone "in-between" the international and the local in ways that others cannot.

Author's Note

This article was produced from a larger research project done in Bhutan during the spring of 2017. I came to Bhutan during the last semester of my last year at Columbia University, after years of studying anthropology and sociology (with an environmental focus). My desire to come to Bhutan was split twofold, the first being my desire to tread away from theory and towards immersing myself in more tangible field research experience. The second was because it was Bhutan, widely known to be one of the most closed countries in the world, and I just wanted to learn more about terms that I had heard for years, 'GNH' and 'net-carbon-sink' among them.

While my research project that spring was ultimately an analysis of the mobility of civil servants in Wangchuck Centennial National Park (the largest protected area in the country) and beyond, combing through the data has revealed other conclusions that I believe are of particular value for sustainable development. Those in the development sphere, especially large-scale organizations, tend to be criticized for their lack of attention to the specificities of the cultures they work with. Of course, larger international organizations deal with bigger problems that require solutions of equal measure. However, I also observed that there is very little attention paid to the actualizers of such programs, the middle actors that appeared to have

the flexibility and knowledge needed to operate effectively. This paper was an attempt to further tease out that relationship: between those implementing and enforcing rules and regulations, as juxtaposed with those impacted.

I gratefully acknowledge the financial and logistical support provided by The School for Field Studies (SFS) at the Ugyen Wangchuck Institute for Conservation and Environmental Research (UWICER), as well as my Primary Investigator and professor, Dr. Riamsara Kuyakanon, for providing guidance and structure to not only my research but general experiences in Bhutan. I am also grateful for my team members Erick Adrian, Natasha Baranow, Annabel Li and Matthew Bleich who contributed to our collective data bank, as well as Kencho Tshering and Rinchin Singye for managing our research team. Last but certainly not least, thank you to the staff of Wangchuck Centennial National Park, the villagers of Naspel and our team of translators for their boundless generosity, hospitality and engagement throughout the research process and beyond.

Keywords: development, Bhutan, environment, networks, conservation, civil servants, forestry

NOTE: *Narrative ethnography and/or inserted field notes are italicized.*

I. Introduction

It was the beginning of cordyceps season in Wangchuck Centennial National Park (WCNP) when we arrived in Nasphel, the village closest to its central entrance. We were still in Bumthang, one of Bhutan's middle districts, but driving here on the new roads required snaking up the valley, along rain-slicked and pothole-laden roads. The mountains surrounding Nasphel felt higher and rockier than those of our field station at the Ugyen Wangchuck Institute for Conservation and Environmental Research (UWICER).

From Naphel, the snowy peaks of the High Himalayas were just on the horizon. There were 10 of us on the research team, including the lead investigator, coordinators, fellow student researchers, and translators. I had come to interview park staff and villagers, to learn more about the people behind and affected by conservation policy, so to speak. But we were approaching cordyceps season. It was possible that the staff quarters – let alone the entire village – could be completely empty.

Cordyceps sinensis, or "yarsegumba" as it's called locally, are a type of fungi found in the mountainous regions of the Himalayas. Prices for cordyceps, traditionally used in Chinese medicine, have skyrocketed over the past 5-10 years, leading to a kind of gold rush in the region. Cordyceps-collecting season meant that most of the park staff would be patrolling in those snowy peaks sooner than I had realized.

In Bhutan, collecting requires the right permit, as well as residency in a proximal district. The permits are given for a maximum of one month between May and June, but the number of illegal collectors from other districts or abroad, as well as local yak herders whose livestock conveniently keep them in the region for the entire summer, meant that park staff must stay on as well. Most of the park staff remain in the mountains for all three months of growing season. We would be long gone by then.

II. Bhutan: A Conservation and Development Frontier

Bhutan is most famously known for its concept of Gross National Happiness, or GNH. The former king of the world's last Himalayan kingdom, Jigme Singye Wangchuck, popularized the idea when he proclaimed that "Gross National Happiness is more important than Gross National Product" in 1972. It is GNH, upon which their current development policy is based, that has given Bhutan a platform on the world stage despite an inconvenient location between China and India. Environmental conservation, sustainable and equitable socio-economic development, preservation and promotion of culture, and good governance make up the four pillars of Bhutanese governance.

Bhutan also has the numbers to back them up: the country's second national GHG (Greenhouse Gas) inventory, generated by the UNFCC, reports that Bhutan's per capita emissions total only 0.8 annual metric tons (UNFCCC, 2011). According to the 'carbon comparator' tool generated by the Energy and Climate Intelligence (ECIU), a UK-based non-profit, Bhutan absorbs more than three times more CO2 emissions than its population emits through industrial activities, agriculture and hydropower (ECIU, 2015). In other words, Bhutan produces less carbon-emissions

than its forests remove via carbon sequestration. This is the "net carbon sink" that current Prime Minister Tshering Tobgay spoke about at a TED Conference in 2016.

This trend is due to a few reasons, the first and most obvious being that Bhutan is not a developed nation, and thus has less carbon-emitting industries in-situ. But as the country inevitably develops, it has been building upon (and diverging from) a legacy of total state-control. Unlike its neighbors, natural resource management (particularly forestry) is completely nationalized in Bhutan. While the Bhutanese government is notorious for having been closed to the outside world, the previous King Jigme Singye Wangchuck's voluntary abdication [for his son] as well as his codified steps towards decentralization and parliamentary-democracy demonstrate a clear shift away from this traditional stance.

Foundational to Bhutan's development are the country's Five Year Plans (FYPs), national economic development plans created by the Royal Government of Bhutan (RGoB) that have spearheaded growth in the country since 1961. As the government has decentralized, the process has become more bureaucratic but remains top-heavy. Forest conservation is a substantial component of the Royal Government's approach to conservation, in part due to the numbers identified above. According to the first National Forest Inventory of Bhutan, approximately 71% of Bhutan is under forest cover, 60% of that being required by law (BBS, 2017, Department of Forests and Park Services).

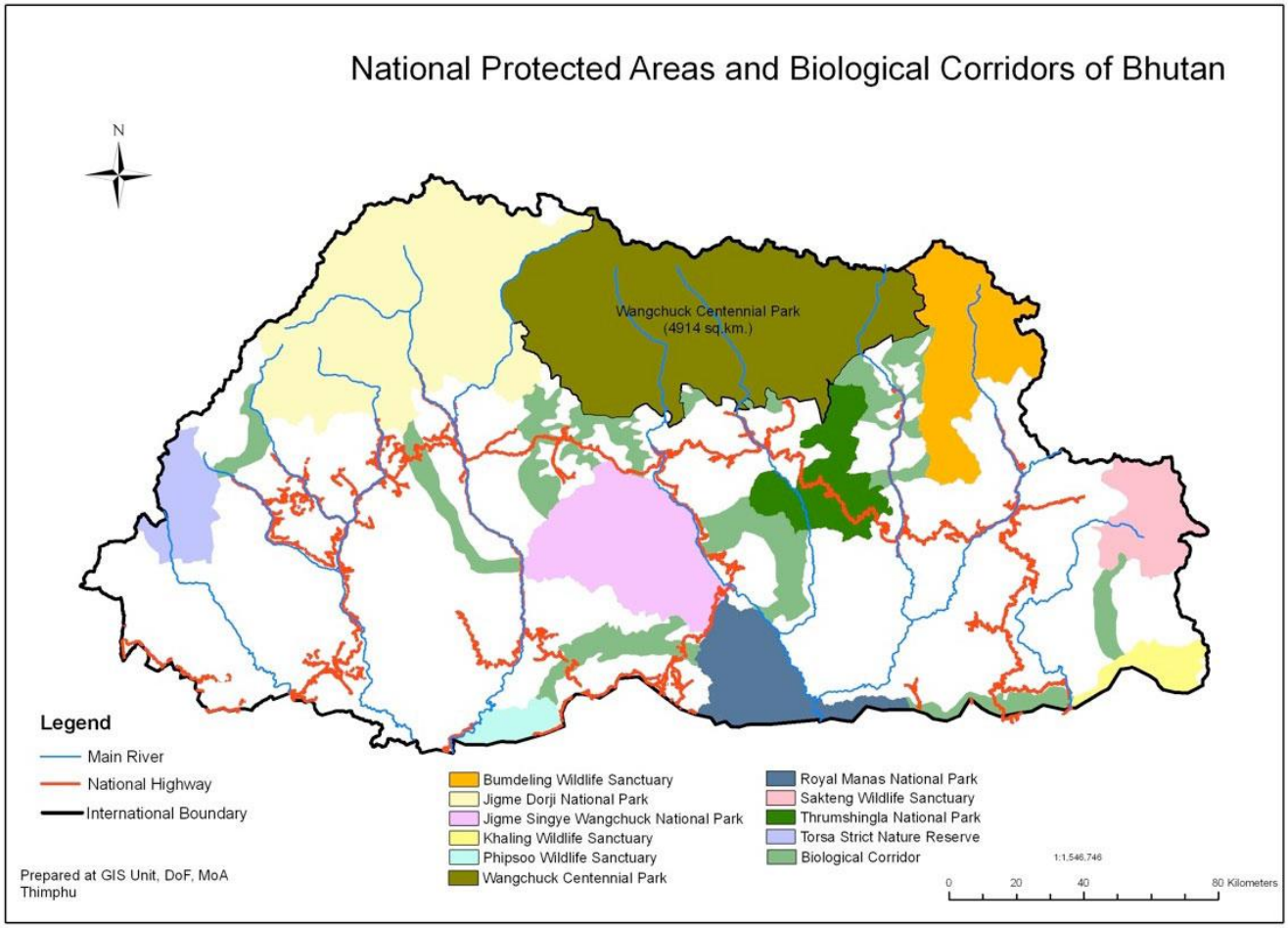

Figure 1: Protected areas of Bhutan, including National Parks, Nature Reserves, Wildlife Sanctuaries and Biological Corridors. (Department of Forests and Park Services, Ministry of Agriculture and Forests, Royal Government of Bhutan.)

Protected areas constitute the major impact of such conservation policies. Wangchuck Centennial National Park (WCNP) is one of five national parks, four wildlife sanctuaries, and one nature reserve. A network of biological corridors links all nine of these areas. Thus, 53% of Bhutan's total land is under official government protection (National Forest Inventory, RGoB, 2017). These numbers that make Bhutan popularly known as one of the richest biodiversity hotspots in the world.

It was this seemingly-unparalleled political will for environmental conservation that brought me to Bhutan in the first place. Especially when compared to neighbors such as Nepal (from 33.7% to 25% forest cover from 1990 to 2015, respectively), or even newly-opened Myanmar (60% to 44.5%), Bhutan's increase from 53.7% to 72.3% is undoubtedly impressive (World Bank, 2017). But it is only by peeling back such jargon and numbers that the complicated network of development and conservation actors reveal themselves.

Internationally, Bhutan has received most of its aid and development funds from India, in part because its historical trading and religious ties to Tibet closed during China's Cultural Revolution. The Japanese have also invested heavily in Bhutanese infrastructure and agricultural projects (Japan ODA, 2011). Swiss cows were introduced for greater milk production. The World Wildlife Fund (WWF) is Bhutan's biggest conservation partner and has helped to fund protected areas for decades (WWF, 2017). The United Nations Development Programme (UNDP) has been involved in Bhutan since 1973 (UNDP 2017). The list goes on.

But peel back a little more. On the ground, Bhutan remains poor and classified as "least-developed" by the World Bank. Thimphu, the capital city, contains about 100,000 of the country's roughly 700,000 people (Would Population Review, 2017). Bhutan also has the highest rate of rural to urban migration in South Asia (World Bank 2015). Food insecurity remains a problem: the World Food Programme reports that one third of primary school children are physically stunted due to malutrition (WFP 2017). Too many educated young people have too few opportunities in the still primarily agricultural economy (Kuensel, 2017).

Cultural and historical traditions and languages are also at risk of extinction as development takes hold. At least 19 languages are spoken in Bhutan, which is divided between four broad (but by no means exclusive) ethnic groups. Shifting cultivation, a traditional practice that was widely used across Bhutan due to the impotence of mountain soil, has given way to more stationary livestock grazing and the modern intensive agricultural production that is enabled by pesticides (FAO, Bhutan).

Given these facts, there were more questions, but less confusion. On the ground, it was clear that conservation policies struggled to both protect resources as well as

provide for the poor rural communities that rely on them for their livelihood, especially given Bhutan's hunger for development. GNH, I soon realized, seemed to be a meaningless phrase to most of the everyday Bhutanese people: an idea that was projected outwards, but less evident within. According to the BBC, this was one reason behind the downfall of the incumbent government (which utilized a platform heavily reliant on GNH) in the last elections (2013).

What became increasingly clear during my time in Bhutan was not that there was a disconnect between the global and local, but rather that they were intimately linked in a kind of network. Ultimately, it was those in the middle that proved to be some of the most important elements for the implementation of development and conservation projects. That is, these Bhutanese actors who had regional and/or international experience as well as local connections could uniquely communicate across all parties and manage the inevitable cultural, linguistic and educational gaps that must be bridged for change to be felt on both sides. Across the board, their exclusive positions between the local villages and multi-national organizations were integral to ensuring that larger conservation-development goals were achieved while simultaneously addressing the concerns and needs of the surrounding community.

These linking figures, especially in the conservation-development sphere I was exposed to, first revealed themselves during the informal conversations we had before arriving in Nasphel. They represented the entire employment and economic spectrum: from Bhutanese civil servants in charge of distributing permits and controlling resource distribution to international development workers. They were remote villagers, whose crop production or livestock remained dependent on said permits, or eco-tourism operators. They were the Bhutanese scientists we were based with and learning from, to a member of the royal family and local high school students, to employees of Bhutan's first major foreign investment venture, Mountain Hazelnut.

The global merged with the local in all of these interactions, and in many forms. The cordyceps market was one – their skyrocketing international value has introduced entirely new economies to remote villages such as Nasphel. One villager we talked to (a cordyceps-collector), had a daughter attending university in Australia, despite the fact that her village had only received electricity three years prior. Another woman had traveled to Japan for training in organic farming, funded by the Japanese government. Eco-tourism ventures appeared to bring in an overlap of equally international clientele, coupled with development and/or aid funding. Mountain Hazelnut, Bhutan's first Direct Foreign Investment (DFI) project, was founded by a Stanford graduate.

The civil servants we talked to, specifically in forestry, were reoccurring elements in these observations, and from the scientists at UWICE to foresters in Protected Areas, certain narratives emerged. They were all native Bhutanese and from different districts and languages across Bhutan's varied geography. As employees of the Royal Government of Bhutan (RGoB), they are required to regularly change post locations around Bhutan in order to prevent corruption.

These civil servants have also had the rare opportunity to pursue degrees, training, assignments, and research at regional and international levels. The extent to which they may do so depends on position as well as previous educational attainment. However, their everyday tasks, especially those of lower ranks, is occupied entirely by the local: actually implementing development projects as set out by the RGoB or conservation partners, preventing illegal logging or extraction of other resources, or on rare occasions, attending local ceremonies such as the purifying *labsang* or *puja*.

It is for these reasons that learning more about Wangchuck Centennial National Park and the village of Naphel was the optimal jumping-off and homing-in point for a deeper understanding of these connections.

III. WCNP & Nasphel: Networks of Interaction

The WCNP Headquarters and village of Nasphel are only about a 10-minute walk away from each other, yet they seem worlds away. The former is equipped with a wireless network, which we were told is occasionally used by intrepid villagers who can catch the signal from outside the building's walls (4G has yet to enter the valley). The GNH Center, a meditation and retreat hall that remains unused for the majority of the year, was built next to the headquarters. All, however, are built in the traditional Bhutanese style that is required by law: rigidly-boxed structures, painted white and decorated with auspicious symbols and patterns.

There are 39 permanent staff total at WCNP, including the administrator, accountant and receptionist. All are civil servants with green Department of Forests and Park Services (DoFPS) uniforms. All except for the HQ's driver and receptionist reside in Chamkar, the town further down Bumthang valley and closest to UWICER, the government research center at which we were based. Between them, the staff represented eight of Bhutan's twenty districts in origin, and the group spoke at least five languages including English and Dzongkha, the national language. Four of the nine staff permanently based at Headquarters speak Bumthap, the local tongue. Of the 39 staff in total that are distributed across the three satellite range offices, that number rises to 17.

Nasphel village, on the other hand, is composed of 32 households built in a main cluster formation with offshoots and outliers nearby. Most homes, if not all, are multi-generational. They are varied in age, from the young attending school, to the old who still remember the time when the valley cultivated not potatoes but buckwheat, when the herders owned primarily yaks and not cattle. Perhaps most importantly, cordyceps were not as important to local livelihood then as they are now. Income is higher here than in most remote, rural villages because of it.

Under the overarching theme of mobility, our team of student researchers (all with different foci in mind – from knowledge-transfer of traditional practices to gaging rural life-satisfaction in a GNH context) composed sets of semi-structured interview questions that were tailored to our respective topics and applicable audiences. We conducted most of our field research collectively and over a total of 10 days at WCNP. The first two days of interviews were conducted in April 2017, with the following sets of two and six consecutively completed in May of the same year. During all three excursions, our team was based in two locally-operated homestays, both of which were begun by a WCNP Integrated Conservation and Development

Program (ICDP). For further context, a few other interviews were conducted at UWICER and in Jakar, the town closest to the former.

Upon first impression, the staff of WCNP and the villagers of Nasphel seemed to operate on entirely different levels. The in-situ diversity of the former is not to be overlooked – the mere fact that Bhutan is composed of numerous valleys (that were essentially isolated until the advent of modern roads) has produced a wealth of unique indigenous languages besides Dzongkha, the national language. Nasphel did initially appear to be both the inverse and product of that.

This gap between the civil servants and the villagers was most apparent when interacting with older generations. Most of the older residents especially struggled with Dzongkha and instead preferred to use their native tongue of Bumthap. Multiple generations of the same households had been yak herders or pursued other traditional practices. Most, however now rely on cordyceps for the majority of their income. All told us of dramatic changes in their lifetimes.

The first Five Year Plan, implemented in 1961, focused on infrastructure, health care, and educational development, and eventually expanded in scope to include the environment. Environmental sustainability is also codified in Bhutan's 2008 National Constitution, with Protected Areas acting as restricting measures to developmental encroachment. Because of this fragile relationship, any possible impediments are heavily regulated and monitored. Such implementation is not universal, however. The Royal Government of Bhutan acknowledges that the varied geographies (both physical and geopolitical) of the country affect the issues encountered.

Where we were, in the north, cordyceps-collecting is highly visible, along with poaching of "charismatic" species (as they're called in the conservation world) such as the black bear, tiger, and snow leopard (100-200). From 2006-2015, Bhutan's Tiger Action Plan (TAP) was initiated in order to reduce transboundary poaching. In 2013, Bhutan rolled out SMART (Spatial Monitoring and Reporting Tool), a capacity-building tool to monitor poaching in parks across the country (WWF, 2016). Southern parks are known to face greater instances of poaching as well, due to their proximity and shared park-lands with India, and their exponentially more accessible borders. Unlike public areas, parks also implement Integrated Conservation Development Programs (ICDPs), in WCNP's case, for water purification or traditional cultural practices such as weaving. This is in part due to the conservation and development objectives of the organizations that fund them. All projects were along the lines of key WWF initiatives.

However, the interviews we conducted in Nasphel revealed a fundamental disconnect between the conservation and development projects implemented by WCNP and WWF more largely and how they were recognized by the community. Case in point: a recent study of human-Asiatic Black Bear interaction in and around WCNP reported that the human-wildlife conflict has not only destroyed crops and livestock, but even humans as well. Between 1960 and 2010, 40 people were reported

to have been mauled by the Asiatic Black Bear, with that number growing exponentially to 19 cases between 2013 and 2015. 52% of respondents believed that the killing of bears would reduce the conflict, despite the "stringent conservation rules [that restrict] killing it" (Jamtsho 2016).

While it cannot be denied that these organizations have greater access to both political and economic capital, and that projects were being implemented in the park, the communities themselves did not seem to be aware of the respective sources or purpose. When asked if she felt that living in the park had any impact upon her livelihood, an elderly woman we talked to simply shrugged. Yes, partnering with the WWF has availed these protected areas of resources and exposure that they would not have had otherwise. But something seems to be lost in translation after the fact – villagers didn't appear to be aware of who exactly implemented the projects, or their international worth.

It is colloquially acknowledged that resource regulation seems to lie in fundamental conflict with the immediate needs of most rural peoples, but substantiating numbers seem to be difficult to find. This may be in part due to the overlapping factors at play ("global and national… individual and households"), and the difficulty of accurately tracing them because of variability (FAO 1994). In their 1994 report, "Rural households and sustainability: Integrating environmental and gender concerns into home economics curricula," the FAO acknowledged that "past economic development policies, international lending, and development assistance programs have contributed in some cases to environmental mismanagement".

The report noted that "there may also be difficult environmental trade-offs in balancing industrial and urban growth with sustaining the natural resource endowments available to households in rural areas" (1994). Globally, the contradiction between such limitations for growth has been called a kind of "eco-imperialism" (The Guardian, 2010). The international statistics of forest conservation that make their way to UN meetings and TED Talks are perceived differently by locals themselves.

But again, presentation usually varies from actuality: at Wangchuck Centennial National Park, a project was recently initiated and supported by international donors to install electric fences for villagers in Nasphel, as human-wildlife conflict is responsible for a sizable amount of crop loss annually according to the park's internal reports. We observed the implementation to be uneven at first, but realized later how multifaceted the issues were. While the park supplied certain materials, villagers provided others – and available land & labor needed for installation was a different story entirely. In many ways, the electric fencing project was an example of how complicated implementing development initiatives are in the first place. More largely, protected areas such as WCNP are in a unique situation because they are not only subject to the conservation laws of the Royal Government of Bhutan, but also the requirements and agenda of their supporters.

Such development projects were varied. Examples included the local homestays we resided in during the research period, a weaving co-op (Dorjibi Weaving Center) for

women, and a Nomads cultural festival (that ceased in 2016). As recently as November 2017, the WWF, RGoB and various donors announced the creation of a USD $43 million fund – Asia's first – for a new initiative called "Bhutan for Life" that would work towards permanently conserving Bhutan's protected areas.

On the ground, implementation is completed by Bhutanese forestry civil servants who are employed by WCNP. Their aforementioned diversity, composed of eight districts and five local languages, is in part a preventative measure for corruption. This is further reinforced by the government stipulation that forestry civil servants must be moved to a different station after a set number of years (Royal Civil Service Commission, 2002). Stations can range from postings in public lands to protected areas such as WCNP. The idea is that the less involved these civil servants are in the communities that they serve, the less opportunity there is for an extra log distributed here or a blind eye turned there (Anti-Corruption Commission, 2016).

These civil servants, however, also received opportunities for education, trainings, conferences and other experiences that the general population was not exposed to. The same applied to UWICER researchers. Depending on rank, lower officials had the ability to pursue degrees, trainings or programs in neighboring countries such as Nepal or India – even as far away as Australia or Austria. Despite this, lower-ranked officials reported education (or lack thereof) as the biggest inhibitor for promotions, not the training they had access to on the job.

Bhutanese civil servants such as the WCNP staff and the researchers at UWICER were shown to occupy unique positions in the conservation-development schema: they were not exactly villagers, but neither were they foreign interlocutors. A villager commented to me that students in the village were sometimes allowed to use the WCNP Park office wireless network. Another said that a couple of foresters had rented rooms in homes within the village for their daily living.

Ultimately, these middle actors emerged to be the most effective in the actualization of conservation and development goals for Wangchuck Centennial National Park. Unlike foreign counterparts, for example, they had an immediate ability to both interact and integrate with the communities they were placed in due to shared language and culture. Some foresters had previously been invited to ceremonies in village homes. While we were in Nasphel, we had the opportunity to observe a religious ceremony at an important *lhakhang* (temple) nearby. We saw villagers, foresters and even army men (given the proximity of the Tibetan border) interact in an overlapping of worlds, backgrounds and languages. We were told that the high Himalayas during cordyceps season was a similar ordeal.

That is not to say that this sentiment is universal: we found that some of the educated Bhutanese staff did not fraternize with the community in Nasphel due to perceived differences in lifestyle preferences or education. Villagers noted that many staff lived in Jakar (a larger town) further down the valley. To explain this, the foresters cited educational opportunities for family members (Nasphel has no secondary school education).

This contradictory yet varied spectrum of interaction seemed to enable their duel outsider-insider status, as mobile enforcers of the law that were still Bhutanese. Some villagers, even, occupied similar positions between the global and local. In either case, this dual status allows them to navigate the space in between.

IV. Looking Forward: the Impact of "Middle-Actors" in Bhutan and Beyond

To further understand these networks of interaction, additional comparisons and studies must be organized outside of those conducted at Wangchuck Centennial National Park. While these clearly actors play an important role in the implementation of development and conservation projects, their effects are generally underestimated and understudied. In cases such as the aforementioned anti-poaching and sustainable development initiatives, the importance of these middle actors as nodes within the larger conservation-framework is demonstrated.

Indeed, sustainable development is often conceived of on the macro scale, in forms such as the UN's Millennium or Sustainable Development goals, but usually without concrete methods of execution. Conservation of the environment for future generations is often implicated in "bourgeoisie" or "industrialized-nation-centric" viewpoints of environmental conservation, and in contrast with needs of the "Global South", who are thought to sideline environmental repercussions in lieu of the need for resources for industrialization and improving their standard of living.

Upon deconstruction, however, the complicated factors at play reveal a kind of symbiotic relationship between these macro and micro elements: one being a larger skeleton of interaction, dominated by the political-economic space, and the other being the "fleshing out" or actualization that is only possible with local interactions and commitments.

For Bhutan, this means approaching development with the local in mind, not only in terms of enacting projects but post-implementation communication as well. The Royal Government already understands the importance of understanding the local: the National GNH survey of 2015 was conducted with 7,153 Bhutanese people aged 15 years and above and conducted entirely in interviews. This desire to keep in mind the perspective of a Bhutanese villager will, of course, diverge from an organization such as the WWF's previously established standards, especially those that have been applied across the world. Of course, the latter has the political and economic capital required to influence governments and international governing bodies that the public may not. These constraints and confirmations of power are understood.

However, given the RGoB's clear desire to understand and integrate local perspectives and priorities, the potential for optimizing implementation, integration, and public communication is high. Efforts at doing so have already been made: for example, community meetings are held to gage the reactions and desires. However, our research seemed to imply that a number of the park's development projects produced uncertain responses from constituents. When asked about the effectiveness of those meetings, local reaction was even more difficult to gage.

Such uncertainty might be mitigated with greater specialization in local outreach, such as further employing local Bumthap dialect with villagers in surveys or approaching community consultation in alternative ways that would align with both local and WWF/RGoB interests. This could be done with larger outreach and education efforts that would empower locals to trace projects from prototype to implementation.

Expanded to a larger scale, greater attention should be paid to those in equivalent "middle" positions in the development-conservation space, with the ability to oscillate between the local and global. Couple greater understanding of these integral but often overlooked middle actors with community outreach and communication, and the substantial improvements may occur. It is the local communities that will greatly improve not only the effectiveness, but perhaps more importantly, the local perception of the effectiveness of such programs.

References:

Annual Report 2016," Anti-Corruption Commission. Royal Government of Bhutan. 2016.

"Bhutan: Bringing Swiss cheese to the Himalayas," New Zealand Herald. 2007.

"Bhutan Civil Service Rules & Regulations 2002," Royal Civil Service Commission of Bhutan. Royal Government of Bhutan. 2002.

"Bhutan PDP opposition party wins election," BBC News. 13 July 2013.

Chambers, Andrew. "The fight against eco-imperialism," The Guardian. 11 April 2010.

Energy & Climate Intelligence Unit (ECIU). Comparator Tool. 2015.

Jamtsho, Yonten. "Assessing patterns of human-Asiatic black bear interaction in and around Wangchuck Centennial National Park, Bhutan," 2016. *Global Ecology and Conservation*, Vol 8. October 2016.

"Japan Official Development Assistance (ODA): Rolling Plan for the Kingdom of Bhutan". Ministry of Foreign Affairs of Bhutan. 2011.

"Leveraging Urbanization in Bhutan". World Bank, 2015. Web.

National Forest Inventory Report, "Stocktaking Nation's Forest Resources. Volume 1." Department of Forests and Park Services, Royal Government of Bhutan. 2017.

National Landscape Information System (NLiS). World Health Organization. 2016.

Rinzin, Yangchen C. "Job plan designed to address youth unemployment," Kuensel. 11 July 2017.

"Second National Communication to the UNFCC (United Nations Framework Convention on Climate Change)". National Environment Commission. Royal Government of Bhutan. 2011.

"Shifting Cultivation in Bhutan: A Gradual Approach to Modifying Land Use Patterns". Food and Agricultural Organization, United Nations. 1995.

United Nationals Development Programme, Bhutan. 2017. Web.

World Bank Open Data. 2017. Web.

World Food Programme, Bhutan. 2017. Web.

World Population Review. 2017. Web.

World Wildlife Fund Bhutan. 2017. Web.