

# NYUNGWE NATIONAL PARK SURVEY RESULTS: APPENDIX 2

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## APPENDIX 2. — SYNTHESIS OF SURVEY RESULTS

[Note: digits following section titles indicate which survey questions were included in that section]

### RESPONDENT INFO. - 1-9

- Of the 29 survey participants, roughly 50% are in the Tourism & Lodging business (10 tour companies, 4 hotels & lodges) and 40% are in agribusiness (6 coffee, 4 tea, & 2 rice growing and/or processing businesses).
- Two responses came from Energy, Water, & Sanitation Authority (EWSA) personnel (one district-level, one national) and one from a cement manufacturer.

#### *Geographic location*

- > 40% of respondents are headquartered in Kigali, while the rest appear to be based in one of the Park districts. [Note: The Park is 95% contained within Rusizi, Nyamasheke, Nyamagabe, and Nyaruguru Districts. The northernmost tip of it lies in Karongi District.]
- **Overall, more than three quarters of the reported employees of survey participants live in communities adjacent to the Park.** As might be expected, nearly all agribusiness employees and most employees of lodging companies live in communities adjacent to the Park, while most tour company employees do not.

#### *Size of businesses*

- **Survey participants cumulatively employ 8,754 people**, although this figure excludes the response of the tea department of the Rwandan National Agricultural Export Development Board (NAEB), which was difficult to interpret.
- **Overall, nearly 60% of survey participants were small and medium employers (≤50 employees), while another roughly 30% were very large employers (300-2000 employees,** though some are part time). Tourism and Lodging companies that participated in the survey were all small: only one had more than 25 employees (Nyungwe Forest Lodge, with 47). More specifically, the nine smallest employers were all in the Tourism / Lodging business and had ≤10 employees each, while the 3 of the five largest were in the tea industry and had 1,000-2,000 employees.
- Among survey participants, **the biggest employers located in the Park districts are in the tea industry, followed by the coffee industry.**
- Of the half of companies that reported figures, only the three large tea companies (\$5–\$7 million), the cement manufacturer (\$20 million), and the national electric and water utility (EWSA; \$20 million) reported annual revenues above 1 million USD. These > \$1 million companies included four of the five biggest employers responding to the survey.
- Excluding the NAEB response, 14 usable estimates totaled to \$56 million in annual revenues. Note that most tourism and lodging companies did not report usable revenue estimates.
- Agribusiness estimates of volume production generally trended with employee numbers and annual revenue within each industry, although there were again several major irregularities. All agribusiness survey participants reported annual tonnages produced, totaling 5,600 tonnes of

rice, 7,400 tonnes of coffee, and 6,300 tonnes of tea (excluding the NAEB representative, who reported annual production of 24,000 tonnes of tea but did not make clear whether this was simply a Rwandan national statistic).

- The tourism and lodging industries reported annual volumes much less consistently, with some confusion about whether or not only Park-related clients should be reported. Four companies participating in the survey reported on the order of 1,900 tourists served per year, while lodging companies reported roughly 38,200 guests per year (one company alone, the Nyungwe Forest Lodge, reported 36,000 of this total).

### *Affiliations*

- **>70% of all companies surveyed have some form of relationship with managers at the Park or affiliated groups working to protect the Park.** Notable exceptions included the cement manufacturer, the two small rice growers' cooperatives, and two of the five coffee washing stations.
- For those companies with established relationships, most work with RDB (17 companies) and four of these (agribusinesses and a guest house) also have a relationship with WCS. Two of the lodging companies specifically indicated that RDB was a business partner or shareholder in their enterprise.

### **PERCEIVED BENEFITS FROM PARK - 10-11**

#### *To survey participants' businesses:*

- 28 out of 29 survey participants (**97%**) **perceived one or more major benefits provided to their businesses by Nyungwe National Park's natural features.** The exception was a single 6-employee tourism company that "focus[es] on community tourism."
- **Every single survey participant representing agribusiness (12 / 29 total participants) described hydrologic benefits from the natural features of the Park: all cited a suitable climate with sufficient rainfall and more than half also cited surface or groundwater sources for direct use.** Three out of four lodging companies and both utility representatives also cited water sources as a direct benefit of the park. **The national utility pointed out that the park was the source of all major rivers in Rwanda,** and cement manufacturer and a tourism company cited general environmental quality benefits (e.g., lack of pollution) derived from the Park's natural features. **Overall, 62% (18/29) of survey participants, representing roughly 98% of both employees and reported annual revenues, said their businesses received hydrologic benefits from the Park's natural features.**
- **Overall, business benefits from human activities generated directly or indirectly by the Park's natural features were cited by more than half of respondents,** representing approximately 8% of employees reported in the survey. All but one of the tourism and lodging companies, as well as one of the large coffee companies, said that they benefited directly from the attraction of clients. Three additional companies, a rice grower, the local utility, and the cement manufacturer cited indirect benefits of increased local economic activity founded in Park tourism.
- Unique responses unrelated to tourist attraction and hydrology included a lodging company that "benefit[s] from RDB security of the area," a large tea company that receives trainings from

Park managers on how to protect the forest from hunting and burning, the local utility that is reportedly partnering with Park managers on a water treatment project, and a tourism company that apparently sells forest products from Nyungwe.

*To local communities:*

- **83% of survey participants identified one or more benefits provided to surrounding communities by the Park's natural features. Half of participants cited climatic conditions / rainfall benefits for agricultural production, and more than 60% of participants cited employment in Park-related business and programs or increased economic activity due to the influx of money associated with tourism.** Several unique responses included good overall environmental quality, training and education opportunities through RDB or the Park, timber resources, and infrastructure (road) development as direct and indirect benefits to surrounding communities ultimately derived from the natural features of the Park. Only **five participants gave no answer or indicated that they did not know how surrounding communities benefit** (three tour companies, the cement manufacturer, and the national utility representative, who had "no comment").

**PERCEIVED USE OF ECOSYSTEM SERVICES (ESS) IN GENERAL & DIRECT PROVISIONING OF ESS TO BUSINESSES BY THE PARK - 12-27** *(Including direct and indirect benefits from tourist attraction)*

*Summary:*

- **80% of all respondents said that their business' success relied on three or more ecosystem services of some type** (including watershed services as well as nature-based tourism / indirect benefits of aesthetic value). **72% perceive an important role of Nyungwe Park in at least three different ecosystem services used by their businesses.** An impressive 2/3 of all agribusiness representatives surveyed perceived an important role of Nyungwe Park in providing their business with *five or more* ecosystem services (including watershed services and indirect benefits from tourist attraction).
- **Approximately 80% of survey participants stated that their business' success relies on at least one major watershed service and perceive an important role of Nyungwe Park in providing the watershed service(s) on which their business relies.** This 80% includes *all* agribusiness and lodging companies, the cement manufacturer and utility representatives, and 40% of tour companies. An impressive 75% of all agribusiness representatives surveyed perceived an important role of Nyungwe Park in providing their businesses with all three of the watershed services about which the survey asked.
- **The only survey participants who reported no important role of the Park in providing services useful to their business, nor any reliance on the listed ecosystem services in general, were three tour companies who also answered no to the question of whether they "serve tourists" (which suggests issues in the interpretation of survey questions).**

*Watershed / Hydrologic Services (12-17)*

- **80% of survey participants indicated that their businesses rely on steady availability of water to be successful, and nearly all of those participants believe that the Park itself plays an important role in providing this service.** This 80% includes all representatives of agribusiness, lodging companies, and utilities, as well as the cement manufacturer and several

tour companies. **These companies include >99% of both employees and annual revenues reported.** One tour company pointed out the large-scale connection between water resources, ecological health of the region, and the attraction of tourists (and thus economic activity) to the Park districts.

- **One coffee company, the cement manufacturer, and one tourism company do not think that the Park itself plays an important role in provisioning of steady water availability to their businesses, even though they rely on this service in general.** This may be in part due to physical location. Also, this coffee company and the cement manufacturer were among the minority of survey participants who do not have an established relationship with Park managers or affiliated groups.
- **Only one in four survey participants feel that their own businesses are at risk from drought or floods, but two thirds of all survey participants believe that the Park plays an important role in regulating the flow of water and protecting against such disasters in general.** However, nearly all of the tour companies either felt that the question about the Park's regulating role was "Not Applicable" to them (5 tour companies) or believe that the Park was not important in this context (3 tour companies). Interestingly, both rice growers' cooperatives represented in the survey were the only two agribusiness participants who also do not believe the Park has an important regulatory role. One of them pointed out that the Park is located far away from their rice operations.
- **More than 60% of participating businesses stated that they rely on the availability of clean water to be successful;** this includes essentially all of the tea, coffee, lodging, and utility representatives and excludes all but three of the tour companies. **Nearly all who rely on clean water felt that the Park plays an important role in its provisioning (>60% of total respondents).** The two rice growing cooperatives and the cement manufacturer stated that they did not rely on the availability of clean water to be successful.

*Non-hydrologic Ecosystem Services (including the attraction of tourism and its implications)*

- **75% of agribusiness representatives in the survey (30% of total respondents, representing nearly 50% of employees reported) not only said that their businesses rely on pollination of crops by species like bats, birds, bees, or other insects to be successful, but also said that the Park plays an important role in providing these pollinators to their businesses.** One large coffee grower ("COOP THE MWAGA Gisakura," employing up to 1,206 people), one large tea company ("Gisovu Tea Company Limited," up to 1,423 employees), and a representative of the National Agricultural Export Development Board of Rwanda either did not know or did not think that their businesses rely on the pollination of crops by bats, birds, and insects.
- **Two thirds of all survey participants, including all agribusiness representatives, said that their businesses rely on good quality soil to be successful and more than 70% of this subset believes that the Park plays an important role in maintaining this soil quality for their businesses.** The inclusion of multiple tourism and lodging companies in the two thirds of participants "relying" on good quality soil suggests that this question was interpreted broadly by some to include the role of soil quality in overall regional ecosystem health and livability / attractiveness. Those who did not perceive a role of the Park in this service included one participant that referenced physical distance of their operations from the Park.
- **10 out of 12 agribusiness representatives (one third of total survey participants) believe**

that their businesses are at risk from agricultural pests, however, only three perceived an important positive role of the Park in controlling pests for their business. *In fact, two of the large coffee companies stated that pests "sometimes" or "usually" come from the Park itself or similar forests* (Rusizi Specialty Coffee Washing Station and IMPEXCOR Coffee Washing Station, with 300 and 400 employees, respectively). Without explanation, two tour companies and the national utility also perceived a risk from agricultural pests and a role of the Park in its mitigation for their businesses.

- **Two thirds of survey participants, including roughly half of agribusiness representatives, report that they either serve tourists direct or otherwise benefit from having tourists in the region. All of this subset perceives an important role of the Park in attracting tourists to the region.** More than half of agribusinesses representatives, as well as the cement manufacturer and the local utility, see tourism, and the Park's impact on it, as helping to increase the market for their products. A couple of lodging companies also benefit from serving the staff of RDB, WCS, and other organizations involved in the Park. *Several agribusinesses do not perceive direct or indirect benefits from tourism in the area because they export their products to the U.S.* However, this question highlights some of the issues with interpreting survey results, as three tourism companies responded that they do not "serve tourists."

#### QUANTITATIVE BUSINESS WATER USES AND COSTS - 29-31

- **Overall, more than 80% of participants reported at least one mode of water use, with the five exceptions being tour companies.**
- Only 60% of survey participants provided *quantitative* estimates of water use, including 2/3 of agribusiness and nearly all lodging companies but less than one third of tour companies.
- **Less than 30% of survey participants reported paying for water, some noting that "they get water for free from sources in Nyungwe" or that "they don't pay because they have their own tanks." Within agribusiness, only 2 out of 12 companies reported paying for water.**
- All reporting water users (except for the utilities) cited drinking water, washing laundry, and bathroom (toilet, showers, hand washing) as modes of use. "Production" or irrigation was cited as a form of water use by more than 60% of respondents (all of agribusiness, plus most lodging and both utility representatives), with more than 50% of all survey participants reporting "production" use.

#### ( USE OF PARK'S BUFFER ZONE PLANTATIONS - 32 )

- **Only five participants (17%, including 3 out of 12 agribusiness respondents, plus a lodging company and the local utility) reported reliance of their own business' success on buffer zone Eucalyptus and pine plantations adjacent to the Park.** Most of them cite prevention of soil erosion as the buffer's important function.

#### PERCEPTION OF ECOLOGICAL THREATS IN AND NEAR PARK - 33-34

- **Nearly 70% of survey participants** (including >80% of agribusiness, 50% of tour companies, and 3 out of 4 lodging companies) **either believe that there are *no* ecological**

problems/threats in the Park or are *not aware* of any such issues.

- **Of the 9 responses that described ecological problems/threats** (6 coming from tourism & lodging companies), **several addressed mining, fires, invasive species, and soil erosion**, while others described pollution along the main road, poaching and trespassing, logging, charcoaling, encroachment by neighboring communities, floods, and some negative impacts of tourist activities in the park.
- **More survey participants are aware of ecological problems/threats in areas adjacent to the Park (approx. 50%)** than are aware of issues in the Park. For areas adjacent to the Park, soil erosion was by far the most frequently reported (by 1 in 4 survey participants), with floods, effects of deforestation, and fires also reported. Multiple responses came from each large economic sector.

### PERCEPTION OF CURRENT WATER SUPPLY STATUS - 35-36

#### *Quantity*

- There was no clear consensus about the current status of water supply quantity. *Excluding the seven tourism companies who either said they did not know about water supply status or felt the question was not applicable to them*, similar numbers of survey participants reported that water supply quantity is generally decreasing, is increasing, and is not changing in their areas.
- There were no clear biases by economic sector, but **those who reported decreasing water supplies connected the trend to overuse and longer dry seasons**, while **two of those who reported increasing water supplies in their area connected the trend to forest proximity and good forest management**. Both the local and the national utility representatives reported no change in the quantity of water supplies.

#### *Quality*

- **More than half of respondents who felt they had insight into water quality trends in their area reported that that water quality is not changing**. Seven tour companies were again excluded for stating a lack of insight.
- **The four participants who reported decreasing water quality all cited soil erosion as the cause, and the national utility representative connected soil erosion to the loss of vegetative cover in hilly areas. Most of the six participants who reported increasing water quality did not give a clear causative explanation, but two agribusiness representatives did connect increasing quality to good forest management** (e.g., "protection of the forest against mining and cutting of trees that pollute sources of water").

### PERCEIVED NEGATIVE HUMAN IMPACTS ON AND NEAR PARK, & TRENDS IN IMPACTS - 37-39

#### *Within the Park*

- **More than 60% of survey participants described at least one human activity within the Park that they believe has negative impacts, and roughly half describe two or more damaging activities**. Three quarters of agribusiness and lodging companies described at least one damaging activity **but half of tour companies were not aware of any**.

- Roughly **30% of participants pointed out each of hunting, mining, and logging**, while 20% noted honey harvesting or bee keeping and 10% noted burning. The national water utility cited infrastructure development, partially related to tourism, as a human activity within the Park that is having negative impacts on the Park's natural features.

### *In areas adjacent to the Park*

- Surprisingly, **only 20% of survey participants reported any human activities having a negative impact on the natural areas adjacent to the Park**. Those who reported damaging activities included three agribusinesses citing mining and charcoaling as contributing to **soil erosion**, as well as three tour companies that cited bushmeat hunting, "cultivating in protected areas such as valleys and marsh[es]," and "high environmental degradation" in general.

### *Trends*

- **Nearly all survey participants, across economic sectors, reported recent decreases of detrimental human activities within the Park:** bushmeat hunting (90%), firewood collection (83%), illegal mining (93%), and fires (90%). The only two participants reporting recent increases in damaging activities were the national utility representative (who reported increases in all but bushmeat hunting) and a lodging company that reported recent increases in bushmeat hunting and illegal mining.

## **PERCEPTION OF POSITIVE PERSONAL CONTRIBUTIONS TO PARK - 40**

- **90% of survey participants feel that their businesses have some direct positive impact on the Park and/or the surrounding areas.**
- Half of agribusiness participants stated that their positive contribution was in attracting clients or visitors who end up also visiting the Park, while the other half reported that their **plantations help protect the Park and/or surrounding area either by offering beneficial vegetative cover** (avoided soil erosion and a physical buffer around the forest) **or by employing people who might otherwise turn to livelihoods that are damaging to the Park.**
- Tourism and lodging companies tended to frame their positive impact as **increasing park visitation (financial support of conservation activities within the park) or employing locals**, which one company noted could help **improve local support for the park** in general.
- The cement manufacturer and the local utility representative felt that their businesses have a positive impact by supplying services that directly or indirectly **support tourism.**
- Two tourism companies and the national utility representative replied that they do *not* have direct positive impacts.

## **INTEREST IN HELPING TO PROTECT PARK? - 41**

- **Every single business surveyed is interested in helping to protect the Park in some way.**
- **More than 60% of survey participants explicitly stated that they are interested in helping to protect the Park because the Park benefits their business**, and (included in this 60%) 17% of participants made specific reference to hydrologic services provided to their business by the Park as a reason for wanting to protect it. Five participants made some reference to an

ideological reason for contributing to the Park's protection, such as needs of future generations and a general interest in "protecting the environment."

### INTEREST IN LEARNING MORE ABOUT INVESTING IN NATURAL CAPITAL? - 42

- **Every single survey participant indicated that their business would be interested in learning more about investing resources in the improved management of natural areas like the Park.**
- Most businesses (>60%) indicated that **their interest is rooted in that fact that they benefit from the Park**. Several noted that they are already engaged in some natural resource investment activities (e.g., tree planting).
- However, four tour companies gave answers that suggested they either did not understand the question or did not think that their own business could make investments — instead interpreting the question as asking whether they wanted to learn about how other companies are investing in natural capital, for the sake of better informing tourists about the conservation projects in the Park.

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## ENDNOTES:

- *Survey results in the raw data format are available upon request.*
- *Please note that it was suggested to participating businesses that individual answers would remain anonymous in the public sphere.*