

PN - ABL-565

ENVIRONMENTAL ASSESSMENT
OF
THE USAID FINANCED
RWENZORI MOUNTAIN SERVICES PROJECT

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September 15, 1990

1.0 PROJECT GOAL AND OBJECTIVE.

USAID, since 1987 has been providing local currency to the development of an indigenous based tourist industry operated in the Rwenzori Mountains by a registered non-governmental organization (NGO), the Rwenzori Mountain Service.

Although it may not be the first attempt, based upon observations by the Regional Environmental Advisor in other developing countries, it is certainly among the most advanced and successful in promoting conservation by the people living in the vicinity of important natural resources. This is being accomplished by returning to the rural community, the stewardship of these resources in order to provide both direct (income to the family) and indirect benefits (income to the community) from sustainable natural resources management.

In the case of the Rwenzori Mountain Services, the major exploitation in the earlier phases has to do with development of trails and shelters to promote backpacking and mountain climbing in the remote and vegetationally unique Rwenzori Mountains also known as the Mountains of the Moon. These mountains are found in Uganda along the west-central border with Zaire. They are inhabited by the independent Bakonjo people whose culture and way of life depends as much on these mountains as the future of the mountains will depend on their developing a caretaker attitude towards the mountains.

To date, the Rwenzori Mountain Services (RMS) has renovated and/or constructed camps at seven locations in the mountains, including cabins, pit latrines, rubbish pits and water supplies. There has also been some trail improvement. They employ over 60 escorts and guides from about 10 different villages providing income direct to individual families. A percentage of the profits from the RMS have gone back into community development to expand the Rwenzori High School at Ibanda and to construct a dispensary for Ibanda. The Rwenzori High School was the regional winner of the World Environmental Day at Kesese with support from RMS.

Plans exist to open a hostel/restaurant and souvenir shop, and eventually to develop commercial pit sawing in the lower multiple use area of the Rwenzoris to sustainably exploit valuable hardwoods.

2. PURPOSE OF THIS ENVIRONMENTAL ASSESSMENT

It has been nearly three years since USAID has been funding the development of the Rwenzori Mountain Services through inputs of local currency. Funding is guaranteed through June 1991. The purpose of this environmental assessment is to determine the environmental soundness of the development activities that have

taken place to date, in particular camp and trail development. Where necessary mitigative actions are recommended that will improve upon what already appear to be well thought out development plans by the RMS. Also, additional needs not currently funded but necessary for the evolution of the RMS as both an organization, a tourism service and a development arm will be recommended so that USAID or other donor agencies may help RMS to meet these needs in the short term until they become financially independent from the expanded tourism trade that is expected with the current political stability in Uganda and the increasing awareness by the World of the challenge and uniqueness of these remote mountains.

This evaluation was undertaken in the field from September 7-13, 1990 in collaboration with:

*Mwanamwolho Stanley, Secretary RMS and Assistant Manager for USAID Project.

*Agustine Baluku, Science Teacher, Rwenzori Secondary School

*Isebabuloya Wilson, Acting Guide RMS

3.0 CONCLUSIONS

The Rwenzori Mountain Services is probably one of the most advanced indigenous based natural resources/development institutions in the world. Most of the recommendations in this assessment are obvious and easily undertaken by RMS and their staff (e.g moving pit latrines or rubbish pits to minimize surfacewater and groundwater pollution), (See Attached Table). Most of the recommended modifications will require the advice of engineers which RMS has on retainer. However there are a number of very important areas where USAID and/or another donor can be of great value.

The two biggest issues where help is needed and which can be resolved in one effort is in the area of assuring safe potable water and alternative energy to using local vegetation. Safe water is the secret to a healthy tourist and will determine the future reputation of RMS as word will quickly spread if campers become ill because of contaminated water. The need to conserve the vegetation is not even in question. It is the raison d'etre for the tourism industry in the Rwenzoris and yet it is this vegetation which is being used by the tourists for fuelwood. It is believed both of these issues can be resolved through piping water from just upstream of the camp sites and combining this with mini-hydropower stations sufficient enough to operate a stove, lights and a two-way radio. The Vice-Chairman of RMS, Mr. Walinah, is a hydro-electric engineer with Mobuku Hydro-electricity Power Station in Ibanda. He will be able to advise RMS on the feasibility of this by campsite. Of greatest

importance will be to establish dry season low flows by camp. This may require some cooperation with field personnel from the Ministry of Lands and Water or from the Ministry of Energy to collect flow data in order to establish the feasibility of this undertaking.

The third area where support is needed is in safety and first aid. The Rwenzori Mountains and their campsites are among the most isolated places in the world. The only reasonable way in and out is by foot. The terrain is even too rough for donkeys. All guides should be trained in first aid and life saving. Medical kits and portable stretchers are needed at each camp. A system of radio communications will eventually be needed.

The next area of support where USAID can be of help is to make sure that the guides and escorts are better equipped with modern day camping gear. They need the very basics like proper backpacks, sleeping bags and wool clothes. Many of them hike into sub-zero conditions in shorts. Their blankets are inadequate against the cold nights and their backpacks date back to the Dark Ages. If RMS is to evolve, their key staff, the guides and escorts must be better equipped and better taken care of

Finally, there appears to be some interest by the office staff in obtaining a computer for the purpose of report writing, accounting and better record keeping. Both of these latter needs are minor expenses compared to the overall support given to RMS and will greatly improve the already good morale of their team.

4.0 EXISTING CONDITIONS AND POTENTIAL IMPACTS FROM THE DEVELOPMENT OF NATURE TOURISM BY THE RWENZORI MOUNTAIN SERVICES.

4.1 Natural Environment. A great deal of time will not be spent on this area since the author of this report is not an alpine ecologist, nor versed in the unique flora of these mountains. The recent book "Africa's Mountains Of The Moon" by Guy Yeoman gives an overview of this vegetation. The Japanese expedition of February 1990 conducted a detailed botanical survey of the area. Likewise, Tony Katenda, the head curator at the Herbarium of Makerere University in Kampala has conducted a number of collecting trips into the Rwenzori. This information is or will soon be available to those who are interested in this level of detail. In general the seven camps visited entail the following major vegetational types (See Attached Figure):

*Ibanda (5,300 Mean Sea Level-MSL) to Nyabitaba Camp (8,700 feet MSL): Tropical deciduous forests with some hardwoods that have a potential to be harvested for commercial purposes, and fern gardens. It is on the fringes of these forests that human pressure is the greatest.

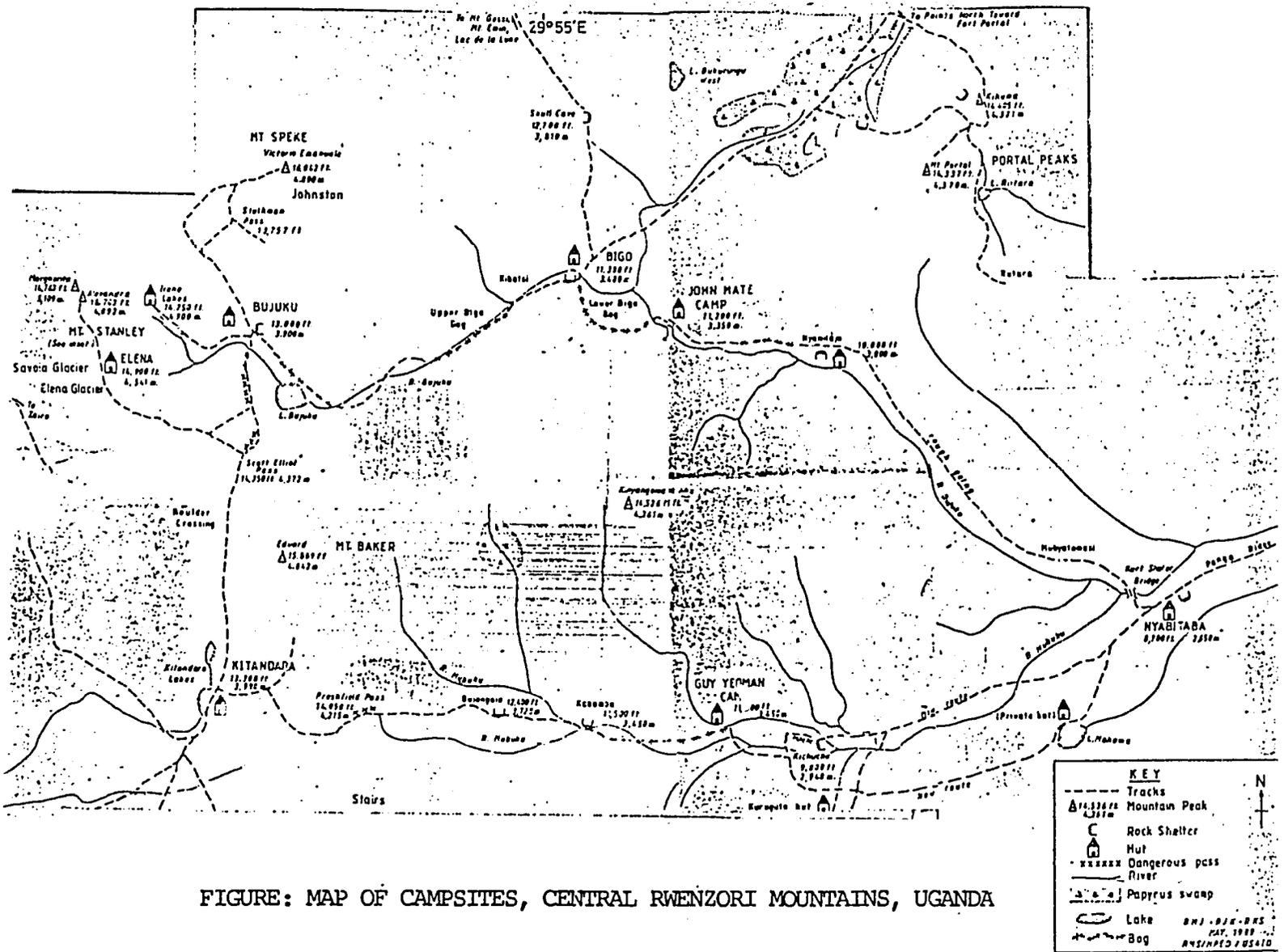


FIGURE: MAP OF CAMPSITES, CENTRAL RWENZORI MOUNTAINS, UGANDA

*Nyabitaba Camp to John Matte Camp (10,000 feet MSL): Heath-Moss Forests dominated by Usnea sp.-Spanish Moss, Antitrichia curtispindula-tree moss, and Erica arborea-tree heath. Also extensive Carex runssoroensis tussock bogs. Begin to observe species of giant groundsel (Scenecio johnstonii, adnivalis), the hybrid small groundsel (S. pirottae), Lobelia bequaertii, L. gibberoa, L. lanuriensis, and the everlasting flower (Helichrysum guilelmii).

*John Matte Camp To Bujuku Camp (13,000 feet MSL): Extensive tussock bogs followed by giant groundsel vegetation and the everlasting bush (Helichrysum stuhlmannii), Lobelia spp., and everlasting flower.

*Bujuku Camp to Elena Camp (14,900 feet MSL): Groundsel Vegetation and everlasting bush followed by boulders covered only with moss and lichen just before arriving at the glacier.

*Elena Camp to Kitandara Camp (13,200 Feet MSL): Return to Giant Groundsel Vegetation and everlasting bush.

*Kitandara Camp To Guy Yeoman Camp (11,500 Feet MSL): Major tussock bogs followed by a return to heath-moss forests with small numbers of giant groundsel and Lobelia spp., the everlasting flower and the everlasting bush.

*Guy Yeoman Camp to Nyabitaba Camp: Heath-Moss forests, everlasting flower and bush followed by bamboo forests just prior to returning to deciduous forest (Lower Montane Forest).

One of the greatest impacts on the natural environment from the development of tourism in the Rwenzoris is the increased use of woody vegetation as a source of energy by campers (e.g. the expedition for this environmental assessment consisted of up to 14 porters, two guides and the Secretary of RMS). This requires tremendous amounts of fuelwood which at presently can only be had by cutting the unique flora, most of which is found nowhere else, but in the Rwenzoris. The most commonly cut vegetation in the areas above Nyabataba Camp include species of groundsel and heath-moss trees.

The second greatest issue is potential pollution of surface waters from sewage and garbage. Since we are only talking of isolated camps in a vast remote wilderness, the danger of significant pollution to the natural environment is probably less of a concern since what little pollution might occur in the vicinity of the camp sites will generally be rapidly diluted out. It is a question of scale and in general pollution will be insignificant other than in the immediate vicinity of the camp

sites. This pollution can be minimized through proper location of pit latrines and rubbish pits.

This pollution, however insignificant to the natural environment, becomes critical to the man-made environment, especially if tourism suffers as the result of campers drinking contaminated surface waters in the vicinity of the camp sites. The Rwenzoris have to be one of the last places in the world where one can safely drink the surface waters from anywhere above Ibanda. Every attempt should be made to assure that this continues to be the case.

The third major concern over the development of tourism, with respect to the natural environment, is the destruction of habitat from tourists trampling the ground upon which much of this vegetation grows. It is already a major problem in Upper and Lower Bigo Bog where RMS has constructed a boardwalk (See Attached Table). This boardwalk has become very controversial, because it has been criticized by certain high level diplomats as being visually unappealing when seen from overlooks. The author found it to be the only acceptable solution to protect dry season wetlands from heavy foot traffic.

Habitat deterioration from trampling will continue to grow as tourism expands since there are bogs scattered over a good part of the mountains. As an example, the author of this report suffered one of the hardest days of his life covering the 3,000 foot descent in altitude from Freshfield Pass to Guy Yeoman Camp. During the rainy season, this stretch of terrain is basically one continuous bog on both level and steep slopes. While easily traversed during the dry season, it becomes a quagmire during the rainy season. Each person carves out his/her own trail in trying to survive this ordeal.

It is believed that the long term solution to this problem will be tourism promotion to educate the potential climber to the difficulties of the rainy season and to promote dry season use of the Rwenzoris (See 5.5).

4.2 Man-Made Environment. The main issues discussed here are related to the activities associated with the Rwenzori Mountain Services and tourism, primarily the development and/or improvement of camps, and the development of guide/escort services.

4.2.1 Shelters. A detailed description of existing conditions in each camp is contained in the attached table. In general RMS has greatly improved upon what had become run down shelters operated by the Mountain Club of Uganda prior to and just after independence. They have either renovated existing shelters which are made of aluminum and although virtually indestructible do not blend into the natural surroundings nor are they as aesthetically

as pleasing as the wooden shelters put up by RMS (See Attached Table).

4.2.1 Potable Water. Although currently, not an apparent problem, all precautions must be taken to assure that it does not become one, as sick hikers associated with contaminated drinking water have the greatest potential to destroy the excellent reputation for tourism which the RMS is slowly achieving. RMS has an excellent understanding of this issue as indicated by its first attempts to develop piped water at Nyabataba Camp (See Attached Table).

4.2.2 Pit Latrines. Pit Latrines exist at all camps. The relationship of these latrines to the groundwater table, and surface waters, especially where potable water is collected for use by campers is very critical to assuring the long term viability of the Rwenzori tourist industry. Proper location of pit latrines in relation to shelters is also critical if nuisance odors are to be avoided (See Attached Table for camp by camp description).

4.2.3 Solid Waste. Like human sewage, garbage can also contaminate ground and surface waters making them unfit for human consumption. Garbage can also become both a visual and odorous nuisance (See Attached Table for camp by camp description).

4.2.4 Energy. As discussed under Section 4.1, the biggest concern here is that in fulfilling its energy requirements, a growing tourism trade may actually destroy the very attraction that is the basis for industry, the Rwenzoris Mountains' unique vegetation.

This self-destruct mechanism associated with tourism is not uncommon as typified by the deterioration of the coral reefs and beaches in the Florida Keys and over much of the Caribbean associated with tourism and the discharge of human sewage. This implies, at all levels, the need for long term planning for development of the Rwenzori Mountains, and not just taking the short term prospective of making a dollar to benefit today. It appears that the RMS is already looking into the future and has the best interest of its community in mind (See Attached Table).

5.0 RECOMMENDED MITIGATION IN ORDER TO PROTECT THE NATURAL AND MAN-MADE ENVIRONMENTS OF THE RWENZORIS AND TO ASSURE THE GREATEST POSSIBILITY FOR SUCCESS OF THE RMS.

An assessment of recommended mitigative measures on a camp by camp basis is contained in the attached table. In most instances, the actions recommended require technical support from an engineer. RMS has two engineers on retainer and it should count heavily upon their advise for the site specific camp improvements.

5.1 Shelters. The attached table provides a camp by camp analysis of the recommended actions to improve these sites. In general there is a need to upgrade the shelters with bunkbeds, and mattresses. Consideration should be given to installing showers, once piped water is available. The author of this report did not bathe for seven days, the longest he has been without a bath in his life. High quality tourism will likely require this amenity.

Over the next year as improvements are made, consideration should be given to having a permanent person at each site during the peak tourist season. His/her roll will be to organize the camp grounds, daily sweeping the shelter floors, washing out the floors of the pit latrines and in general assuring an orderly and organized camp. This person may be rotated out every two weeks. This may also present an opportunity to get some of the women in the community involved since it is evident from the author's visit that the male dominated RMS while excellent at guiding and escorting, leaves a lot to be desired as far as keeping a clean and orderly camp site and in providing quality and varied meals. It is possible that getting some women involved could help improve this situation. A husband wife team in the camp might even be considered.

5.2 Potable Water. The attached table provides a camp by camp description of recommendations. In general it is recommended that all drinking water be collected from upstream of the camp sites. While it takes many bacteria to make a person sick, it takes only one viral unit to make a person ill. The importance of safe drinking water in the Rwenzoris to the future of tourism and the reputation of the RMS for quality service can not be overstated. In the long run, where feasible, piped water from a source upstream of the camp is the best solution. Until piped water is in existence, water, safe or not will be collected at the camp site because of convenience.

5.3 Solid Waste. In general the rubbish pits appear adequate (See Attached Table). However, in some areas there are problems with high water tables. In this case, a designated and clearly defined area of well drained open slope, which is neither a visual nor odor nuisance, might be considered where refuse can be disposed (e.g. this type of disposal of vegetable matter was used by the author's relatives when he was a young boy on a Maryland farm). In most of the pits observed, there were large numbers of combustibles (e.g. papers) and non-biodegradables (e.g. metal tins). At all sites, consideration should be given to providing two bins per shelter and kitchen, one marked for combustibles and one marked non-combustibles. Combustibles should be burned. All tins and other non-combustibles should be carried out upon the return leg of the expedition or by the next returning party which will have free porters as food stuffs are used up. Only organic matter such as vegetable residue should be placed in the rubbish

pit.

5.4 Energy. It appears that water is one commodity that the Rwenzoris Mountains are not short of, unlike most of the remainder of Africa. The RMS is very interested in installing small hydropower stations that could run a few lightbulbs, an electric stove, a heater and a radio for communication with headquarters or other camps. During this rainy season visit of September, there certainly appeared to be adequate water at most sites. The engineers advising RMS, in conjunction with the Ministry which conducts hydrological monitoring, should assess whether dry season flows, the peak of the tourist season, are adequate to turn small turbines. If this does not prove feasible, although the author believes it will, other options to be explored are solar power, or kerosine stoves, or a combination of both.

5.5 Habitat Destruction From Trampling By Hikers. Although, boardwalks as in Upper Bigo Bog may help to alleviate certain dry season problem areas, they are not the long term cost effective solution to this overall problem. It is believed, that a certain amount of destruction in the vicinity of the trails is to be expected, and in general will be minor relative to the total amount of habitat since it is confined.

In areas that are swampy year round as in Upper Bigo Bog, this can be remedied by a boardwalk.

What can not be remedied is the expansion of this problem over a very large area during the rainy season when much of the Rwenzoris becomes a giant bog and each person is forced to find his/her own trail, usually with the help of a caring guide. Then the destruction becomes much wider spread, although still minor compared to the total habitat. This can not be cost effectively remedied with boardwalks, as three-quarters of the trails would have to be covered. The only mitigation can be to promote dry season excursions, charge even higher than the going rainy season double rate to discourage hiking at this time, and possibly consider closing the Rwenzoris during the peak rainy season (Mid-August to Mid-November, Mid-March to Mid-May). Fortunately, most of the tourism is during the dry season. However, there was a lot of trail destruction evident, during this environmental assessment, even with the few tourists who apparently venture into the Rwenzoris during the rainy season.

It is believed that promotion of dry season tourism could go a long way to alleviating this problem. The few tourists that the author met, like himself, had no idea of what to expect. The author would never return to hike this area during the rainy season, based upon what he currently knows, nor would he recommend it to a friend. Putting unsuspecting tourists through

the physical hardships of a rainy season excursion is not only dangerous, but risks to eventually backfire on the RMS by giving the Rwenzori Mountains a reputation not for their beauty but for their difficulty of access. This risks to turn back prospective clients once they hear of this. Educating the tourist as to the best time to come will likely be the best mitigative measure that could be undertaken to protect the Rwenzori's unique vegetation and RMS's reputation.

5.6 Other

5.6.1 The Need For Contingency First Aid Plans And Communications. The Rwenzori Mountain Service Camps are some of the most isolated anywhere in the world. If a serious injury were to occur, virtually the only way to evacuate a person would be to carry him/her out or to call in a military helicopter. The terrain is too rugged for access by horse or donkey.

Currently, to the author's knowledge, no one on the RMS guide/escort service has a certified first aid/life saving certificate. There is not one camp with a portable stretcher. Depending on the location a runner would require 1-2 days to get to Ibanda and some hours to get to Kesese before an attempt could be made to obtain a helicopter. By then it could be too late. If the RMS is to develop into a full fledged tourist operation, it will require a major upgrading in its first aid and lifesaving capabilities over the next few years. These needs/capabilities include but should not be limited to:

- *Radio Communication between the camps and headquarters in case of an accident.

- *Good first aid kits issued to each guide as he departs with his expedition.

- *First Aid training for all guides.

- *A portable stretcher at each camp.

5.6.3 The Need For Improved Field Equipment For Guides and Escorts. The long term success or failure of the RMS will be determined by the happiness and well being of the escorts and guides. Right now they are doing what they are doing for very low pay and little in the way of amenities out of desperation to obtain wages. This may not always be the case. The escorts are some of the most impressive physical specimens the author has ever seen. After the first day of the seven day expedition, the author gave up his 40 pound pack to an escort from sheer exhaustion and fear that carrying a full pack through this rugged terrain might result in bodily injury such as a twisted knee or worse. The escorts think nothing of carrying a 40 pound pack up to 15,000 feet and in a third to one half the time of the author

who maybe carried a 10 pound rucksack. To say the least, the author was humbled by this experience.

Shelters are slowly improving for the guides and porters, as is exemplified at John Matte Camp and Guy Yeoman Camp where the porters have separate quarters from the smokey kitchen, or caves of the past (See Attached Table).

What the guides and porters badly need is proper clothing and equipment. USAID should help RMS obtain foreign exchange privileges so that they can begin charging hikers in foreign currency instead of Uganda shillings. They need to order basics such as rain/wind parkas, sleeping bags (Those blankets can't keep them warm), wool pants and socks that will insulate even when wet (some porters are in sub-zero conditions in shorts), proper water-proofed backpacks as used on canoe and rafting expeditions instead of gunny sacks and banana strands. If RMS had 10 sets of gear for a start, the men could be issued this equipment at the start of each expedition, returning it upon finishing. Eventually, each could have his own personal gear.

Some of the problems that RMS has in keeping an orderly camp has nothing to do with the camp but with the currently ill equipped escorts. For example, in a number of camps the escorts prefer to sleep by the fire in the kitchen facility since their blankets can not possibly keep them warm at night. In the newly constructed escort cabin of Nyabitaba, once again the escorts were making a fire. Give them proper sleeping bags and this should diminish. In a number of cabins, the escorts use dried moss for bedding since they have no foam bedding or mattresses. This bedding often becomes full of flees and must be burned. Once again, properly equipped guides and porters will greatly diminish such actions and make for a happier escort and a better kept camp.

TABLE
EXISTING CONDITIONS AND MITIGATIVE MEASURES
TO ASSURE
NATURAL AND MAN-MADE ENVIRONMENTAL
SOUNDNESS

AT RWENZORI MOUNTAIN SERVICES CAMPSITES

SITE
NYABITABA

*Shelter:

Existing:

Renovated aluminum shelter for tourists, new wood shelter for guides/escorts. Plans exist to build second tourist shelter and to add bunk beds and mattresses to all shelters. Because the guides do not have adequate equipment, they still prefer to sleep by the fire in the kitchen area rather than in the new shelter provided for them.

Mitigation

Recommended:

Need new kitchen facility. The guide/escort shelter needs floor space completed. Consideration should be given to installing a shower stalls in shelters. In uncompleted section of new escort cabin fires are being made. This should be stopped or interior of cabin will be covered in soot. Brooms should be placed in each shelter and they should be swept daily.

*Potable
Water

Existing:

Gravity fed water system with storage tank. The most impressive thing was to see how their engineer had used cement channels immediately under the faucets and under the overflow pipes to absorb the energy from falling water so that by the time it touches the ground the energy is dispersed and there is no erosion. Plans exist to eventually install showers and also to use the system to drive generators in order to have an electric supply.

Mitigation

Recommended

None.

TABLE (Cont.)
EXISTING CONDITIONS AND MITIGATIVE MEASURES
TO ASSURE
NATURAL AND MAN-MADE ENVIRONMENTAL
SOUNDNESS
AT RWENZORI MOUNTAIN SERVICES CAMPSITES

SITE

NYABITABA (Cont.)

*Pit

Latrines:

Existing: They have two and are constructing a third pit latrine well removed from any potable water supplies or surface water stream.

Recommended
Mitigation:

A regular washing of the pit latrine floors should be undertaken as part of a camp maintenance program.

*Solid
Waste

Existing: Currently, there are three open pits to dispose of solid waste. One is located directly in front of the tourist shelter and one directly behind, both not more than 10 meters from the shelter. The one at the rear of the shelter is just off the path leading to the pit latrine. Someone could easily slip and fall into this latter pit in going to or from the pit latrine, especially in the evening. People are encouraged to haul out tins and other non-biodegradable materials.

The third pit is located directly behind the guide/escort shelter and not more than three feet off of the main hiking trail. It will become a visual eyesore and cause odor problems.

TABLE (Cont.)
 EXISTING CONDITIONS AND MITIGATIVE MEASURES
 TO ASSURE
 NATURAL AND MAN-MADE ENVIRONMENTAL
 SOUNDNESS
 AT RWENZORI MOUNTAIN SERVICES CAMPSITES

SITE

NYABITABA (Cont.)

*Solid Waste (Cont.)

Mitigation

Recommended:

Consideration should be given to abandoning the two pits and relocating the garbage site to an area that is a bit further removed from the camp site and not so easily seen.

The pit by the guide/escort shelter should be moved to a convenient area that will be neither a visual nor odor nuisance.

Consideration should be given to providing two plastic garbage pails per shelter and kitchen, one marked for combustibles and one marked non-combustibles. Combustibles should be burned. All tins and other non-combustibles should be carried out upon the return leg of the expedition or the next returning party which will have free porters as food stuffs are used up. Only organic matter such as vegetable should be placed in the rubbish pit.

*Energy:

Existing:

Wood is the major source of energy and is resulting in local vegetation being cut to supply the demand. This can only increase as tourism expands and could become detrimental to the surrounding vegetation.

Mitigation Recommended

A small hydropower station should be considered, tapping into the already existing piped water supply.

TABLE (Cont.)

EXISTING CONDITIONS AND MITIGATIVE MEASURES
TO ASSURE
NATURAL AND MAN-MADE ENVIRONMENTAL
SOUNDNESS
AT RWENZORI MOUNTAIN SERVICES CAMPSITES

SITE

JOHN MAATE CAMP

*Shelters:

Existing:

Two shelters and a kitchen have been erected. They were manufactured by Casements Co., Kampala, at just over 6 million USH each. All of the materials were hand carried into the camp so the total cost was over 35 million USH. Because of the cost they have decided to built all future huts locally such as at Nyabitaba, and Kitandara. This will reduce the cost to less than 10 million erected.

One very positive aspect of these shelters are that they are constructed of wood and left in a natural color which is aesthetically very appealing (compared to Nyabitaba Camp that is painted green).

The tourist shelter has bunk beds and only needs mattresses. The interior of the escort shelter is dirty from a malfunctioning fireplace. Because the guides do not have proper bedding, the use dried moss that becomes covered with flees.

Recommended
Mitigation

Because of the very muddy conditions, funds are needed for construction of walkways between the two shelters and the mess hut and from the mess hut to the edge of the Bujuku River. Shelters should be swept daily.

It is advised that in the future all construction of shelters be in this natural wood, including the hotels and all buildings associated with tourist facilities. Buildings in this natural wood blend in with the surroundings and will appeal to European and North American tourists.

TABLE (Cont.)
 EXISTING CONDITIONS AND MITIGATIVE MEASURES
 TO ASSURE
 NATURAL AND MAN-MADE ENVIRONMENTAL
 SOUNDNESS
 AT RWENZORI MOUNTAIN SERVICES CAMPSITES

SITE

JOHN MAATE CAMP (cont.)

*Potable
Water:

Existing: Currently, water is taken directly from the river which is within 15 yards of the camp.

Recommended
Mitigation:

Although everything appears sound, in order to assure that there is no possibility of contaminated water, it is recommended that water be piped in from upstream of the camp site complex.

*Pit
Latrines:

Existing: There are two pit latrines. They are both well removed from the river and do not appear to pose a public health or pollution problem. However, the latrine that is situated along the entrance of the camp is causing problems with noxious odors.

Recommended
Mitigation:

Plans exist to relocate pit latrine causing odor problems in the vicinity of the other latrine which is situated on high ground behind the tourist shelter. The floors of the pit latrines should be washed down regularly.

TABLE
EXISTING CONDITIONS AND MITIGATIVE MEASURES
TO ASSURE
NATURAL AND MAN-MADE ENVIRONMENTAL
SOUNDNESS
AT RWENZORI MOUNTAIN SERVICES CAMPSITES

SITE

JOHN MAATE CAMP (cont.)

*Solid Waste:

Existing: There are two rubbish pits, one behind the main tourist facility and one behind the escorts' shelter. Although it appears well removed from the river, when it rains, the pit by the guide/escort camp appears to fill up with water either directly or from the ground water.

Recommended Mitigation:

Consideration is being given to moving the rubbish pit by the guide/escort camp to high ground behind the main tourist facility.

If a well drained area can not be easily located that is convenient, then a gently sloping but clearly confined and designated area should be located that can be used to dispose of rubbish.

Consideration should be given to providing two plastic garbage pails per shelter and kitchen, one marked for combustibles and one marked non-combustibles. Combustibles should be burned. All tins and other non-combustibles should be carried out upon the return leg of the expedition or the next returning party which will have free porters as food stuffs are used up. Only organic matter such as vegetable should be placed in the rubbish pit.

TABLE (Cont.)
EXISTING CONDITIONS AND MITIGATIVE MEASURES
TO ASSURE
NATURAL AND MAN-MADE ENVIRONMENTAL
SOUNDNESS
AT RWENZORI MOUNTAIN SERVICES CAMPSITES

SITE

JOHN MAATE CAMP (cont.)

*Energy:

Existing: Currently Heath-moss trees, the dominant vegetation in the area, are the primary source of energy. If nothing is done to mitigate this, it could be detrimental as tourism expands.

Recommended Mitigation: Consider installing a small hydropower station that compliments the recommended piping of water.

BIGO CAMP

*Shelter:

Existing: There is an old shelter from the Mountain Club of Uganda which RMS renovated putting in a wooden floor. The escorts must sleep in a cave. The existing shelter is on low ground.

Recommended Mitigation: RMS plans to raise this shelter to higher ground and will build a shelter for the escorts.

TABLE (Cont.)

EXISTING CONDITIONS AND MITIGATIVE MEASURES
TO ASSURE
NATURAL AND MAN-MADE ENVIRONMENTAL
SOUNDNESS
AT RWENZORI MOUNTAIN SERVICES CAMPSITES

SITE

BIGO CAMP (Cont.)

*Potable

Water:

Existing: Potable water is taken from the Bujuku River.

Recommended
Mitigation:

Since, this camp will not be heavily used (e.g. only by parties wishing to take a side trip to Portal Peaks, Mount. Gessi and Emin and to Skull Cave), it is likely not worth the expense to pipe in water unless it can be combined with meeting energy needs. It is recommended that potable water be collected from up stream of the camp site.

*Pit

Latrines:

Existing: RMS has two pit latrines, one for the escorts behind the shelter and to one side of the cave, and another just to the left of the shelter facing out of it for the tourists.

Recommended
Mitigation:

The pit latrine by the tourist shelter is on the same level as the shelter where there is an apparent high water table land although at an elevation of about 6 feet up from the river, is only about 75 yards from the river.

It is suggested that this latrine be moved further from the river and to higher ground. Although the likelihood is remote, given that John Matte Camp is only about a kilometer away, it is not worth taking the risk of polluting water that may be drunk by tourists down stream.

TABLE (Cont.)
EXISTING CONDITIONS AND MITIGATIVE MEASURES
TO ASSURE
NATURAL AND MAN-MADE ENVIRONMENTAL
SOUNDNESS
AT RWENZORI MOUNTAIN SERVICES CAMPSITES

SITE

BIGO CAMP (Cont.)

*Solid Waste:

Existing:

There are two rubbish pits, one by the pit latrine near used by the escorts and the other near the pit latrine used by the tourists.

Recommended

Mitigation:

For the same reason given for the tourists' pit latrine, it is suggested that the rubbish pit by the tourist latrine be moved to higher ground.

Consideration should be given to providing two plastic garbage pails per shelter and kitchen, one marked for combustibles and one marked non-combustibles. Combustibles should be burned. All tins and other non-combustibles should be carried out upon the return leg of the expedition or the next returning party which will have free porters as food stuffs are used up. Only organic matter such as vegetable should be placed in the rubbish pit.

*Energy:

Existing:

Groundsels: Scenecio johnstonii and S. pirottae are being cut in this area for fuel by the campers.

Recommended

Mitigation:

Alternative energy sources must be found. A mini-hydropower station may be considered but may not be cost effective since this camp is only infrequently used. Since anyone planning to use this camp will likely be a serious climber who will be going to high mountain peaks above the vegetation line, it may only be required that they use their personal camping stoves at this site.

TABLE (Cont.)
 EXISTING CONDITIONS AND MITIGATIVE MEASURES
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SITE

BIGO CAMP TO BUJUKU CAMP:

***Proposed Bridge Across Bujuku River Near Bigo Camp:**
 Existing: Heavy flooding during the rainy season makes crossing the river very hazardous.

Recommended Mitigation: A wooden bridge is being proposed for construction across a narrow section of the river.

***Upper Bigo Bog Planking:**

Existing: This has been constructed over the last kilometer of the bog. It is constructed of 2x4's and is about 3 feet wide. It was put in place in order to preserve the bog vegetation that was being destroyed by hikers using numerous paths to traverse this especially wet area. It is very controversial since it is considered an eyesore by many, especially when seen from higher altitudes.

Recommended Mitigation: After traversing it and filming it from ground level and above the Regional Environmental Advisor finds it both effective and visually acceptable. It is very similar to the boardwalks placed over the Everglades National Park, Florida, to protect marsh habitat and to permit tourists to experience a mangrove environment, mangroves being especially difficult to traverse. Unless someone can find a more acceptable solution to the above problem, this planking should be extended so that it completely covers the bog trail. In fact there may be a few other spots in other bogs environments where this might be advisable over dry season wetlands.

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TABLE (Cont.)
EXISTING CONDITIONS AND MITIGATIVE MEASURES
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SITE

BUJUKU CAMP

*Shelters:

Existing: There are currently two existing shelters that date back to the Mountain Club of Uganda. One is for tourists and the other is for escorts/cooking. The interior of the escort/cooking shelter is smoky and covered in black soot from cooking, making conditions for the escorts very poor. The escorts must sleep on the ground. These shelters are on low ground right adjacent to a stream that drains into Lake Bujuku. The water table is high in this area as a result the area is muddy year round.

Recommended Mitigation: Plans exist to construct two new shelters on higher ground, one for tourists and one for the escorts, with a separate cooking area. Shelters should be swept daily.

*Potable Water:

Existing: Currently, water is taken from the stream which is 10 yards from the shelters. Two pipes collect the water. This collection point is upstream of both the pit latrines and the rubbish pit and therefore there is no chance for contamination of this potable water.

Recommended Mitigation: None, although the water supply problem will have to be readdressed when a new camp is constructed.

TABLE (Cont.)
EXISTING CONDITIONS AND MITIGATIVE MEASURES
TO ASSURE
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SITE

BUJUKU CAMP (Cont.)

*Pit Latrines:

Existing: Because of the high water table, one of the pit latrines is out of use. The other is starting to have problems.

Recommended Mitigation:

With construction of new facilities on higher grounds, it is hoped that this problem will be remedied. Regular washing of floors is needed.

*Solid Waste:

One garbage pit exists that is currently flooded from the high water table and the rains. Once again, plans exist to remove this site to higher grounds along with the other facilities. Until that time, in place of a pit, a well defined but gently sloping area that is neither a visual nor odor nuisance should be located and the pit filled-in.

Consideration should be given to providing two plastic garbage pails per shelter and kitchen, one marked for combustibles and one marked non-combustibles. Combustibles should be burned. All tins and other non-combustibles should be carried out upon the return leg of the expedition or the next returning party which will have free porters as food stuffs are used up. Only organic matter such as vegetable should be placed in the rubbish pit.

TABLE (Cont.)
 EXISTING CONDITIONS AND MITIGATIVE MEASURES
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SITE

BUJUKU CAMP (Cont.)

*Energy:

Existing: Currently, groundsel vegetation appears to be the primary source of energy in this area.

Recommended Mitigation: It would appear that hydropower may once again be the solution to this energy problem.

ELENA CAMP

*Shelter:

Existing: There are two small aluminum shelters from the Mountain Club of Uganda period. One is in need of a floor, the other is okay. Because of the increase in tourists, RMS has installed a new shelter made by Casements.

Recommended Mitigation: None.

*Potable Water:

Existing: Potable water is taken from a small pond that contains snow melt from the Stanley Glacier. It is upstream of both the pit latrine and the garbage pit so that it appears that this is very safe water.

Recommended Mitigation: None

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TABLE (Cont.)
EXISTING CONDITIONS AND MITIGATIVE MEASURES
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SITE

ELENA CAMP

*Pit Latrine:

Existing: There is one pit latrine downstream of the water source which RMS installed. It is situated over a crevice in the rocks and does not appear to be a pollution hazard. The Kitandara Lakes are miles away. By the time effluent, if any, from this latrine reaches these lakes it will be diluted out.

Recommended Mitigation: None.

*Solid Waste:

Existing: There is one garbage pit near the pit latrine. This camp appeared a bit unkept with pieces of paper lying about.

Recommended Mitigation: Because of the rocky nature of this area and the low temperatures both of which are not conducive to good biodegradation, it might be advisable to burn all papers and to carry out all tins and organics.

*Energy:

Existing: This is above the tree line at about 14,900 feet. Most people who come here are serious climbers with their own stoves, crampons, ice axes, etc. Therefore energy is not a major problem.

Recommended Mitigation: None.

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TABLE (Cont.)
EXISTING CONDITIONS AND MITIGATIVE MEASURES
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SITE

KITANDARA CAMP

*Shelter:

Existing: There are two original buildings, a shelter and a kitchen made of aluminum. A new wooden shelter has been installed by RMS. Money is available from USAID to install Bunkbeds, a floor and a fire place.

Recommended Mitigation: Because of its scenic location on the edge of the lake. it is recommended that the original aluminum shelter be fixed up and maintained as the tourist shelter. The new shelter needs bunkbeds and a floor. A walkway is needed between the new shelter and the old buildings because of the muddy conditions. Floors should be swept daily.

*Potable Water

Existing: Potable water is taken from a stream entering the lake. The entire area appears to drain towards the lake or the streams that eventually drain into the lake.

Recommended Mitigation: Although it is doubtful that effluent from sewage or solid waste will have an adverse negative impact on the ecology of the lake due to the minimal amount of pollution from the only camp on the lake, (e.g. compared to lakes in the United States that are ringed with lodges and septic tanks), it is advisable from the standpoint of tourism to assure that all water be collected from points upstream of human habitation. This would be most easily accomplished by running pipes to the camps from an upstream site similar to Nyabataba Camp.

TABLE (Cont.)
EXISTING CONDITIONS AND MITIGATIVE MEASURES
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SITE

KITANDARA CAMP (cont.)

*Pit Latrines:

Existing: There are two pit latrines which RMS has installed. One pit latrine is at the old Mountain Club Of Uganda Camp site and appears to be located on high ground but only about 50-75 yards from the lake. The amount of pollution to the lake will likely be negligible. It is too cold for swimming. Therefore as stated above the only concern is that potable water not be collected from points down drainage from this site. The pit latrine at the new RMS shelter is located well up into the hills but still drains down towards the lake and local streams.

Recommended
Mitigation:

None, other than collecting potable water from a point upstream of the camp and regular washing of latrine floors.

*Solid Waste:

*Existing:

There are two garbage pits. The garbage pit located at the old Mountain Club Of Uganda site is next to the pit latrine. It is located against a cliff face which appears to be full of cracks and crevices. The concern here is that there may be easy contact or drainage to the ground water and then to the lake. There are a lot of combustibles being placed in this pit.

The rubbish pit at the new RMS camp is located about 25 yards from the entrance to the shelter and was flooded.

TABLE (Cont.)
 EXISTING CONDITIONS AND MITIGATIVE MEASURES
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SITE

KITANDARA CAMP (cont.)

*Solid Waste (cont.)

Recommended Mitigation:

Once again it is advisable to collect potable water from upstream of the camps.

The rubbish pit at the new RMS camp probably needs removal to another site that is better drained and possibly further removed so that it is neither a visual nor an odor nuisance.

Consideration should be given to providing two plastic garbage pails per shelter and kitchen, one marked for combustibles and one marked non-combustibles. Combustibles should be burned. All tins and other non-combustibles should be carried out upon the return leg of the expedition or the next returning party which will have free porters as food stuffs are used up. Only organic matter such as vegetable should be placed in the rubbish pit.

*Energy:

Existing:

Currently local vegetation is used, groundsels being the dominant vegetation.

Recommended Mitigation:

Once again there is the possibility for installation of a small hydropower station which could be combined with piping for a potable water.

TABLE (Cont.)
 EXISTING CONDITIONS AND MITIGATIVE MEASURES
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SITE

GUY YEOMAN CAMP

*Shelters:

Existing: There are three shelters, one for the tourists, one for the guides/porters and a cooking shelter. They were constructed at the end of 1989 and are made by Casement Uganda. They have bunkbeds but need mattresses. The escorts use dried moss on the because they lack proper bedding.

Recommended Mitigation: The camp area is very muddy. It is recommended that plank walkways be constructed between the cabins and the cook shelter, thereby interconnecting all buildings. Floors should be swept daily.

*Potable Water:

Existing: Drinking water is taken from the river which is only about 50 yards away from the cooking shelter and guide/porter cabins. As in the other camps, it is advisable to collect all water upstream from the camp.

Recommended Mitigation: Plans exist to eventually pipe in water gravity fed from the river. Until water is piped in this will likely not happen as it is too easy for the porters to walk 50 yards and collect it.

TABLE (Cont.)
EXISTING CONDITIONS AND MITIGATIVE MEASURES
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SITE

GUY YEOMAN CAMP (cont.)

*Pit Latrines:

ting: There are two pit latrines. The one by the guide/porter cabin is too close to the cabin and will likely result in nuisable odors. The other is on a hill about 100 yards from the river near the tourist cabin. Both pit latrines are about 75 yards from the river on relatively high ground and do not appear to pose a pollution problem to the Kabamba River.

Recommended
Mitigation:

Plans exist to move the pit latrine by the guide/escort cabin. Floors should be washed regularly.

*Solid Waste:

Existing:

There are two rubbish pits, one up on the hill side by the tourist cabin looking to be well away from the river (100 yards) and the other on flat ground behind the guide/porter cabin.

Recommended
Mitigation:

None.

*Energy:

Existing:

Currently, vegetation mostly trees from the heath-moss forest and groundsels.

Recommended
Mitigation:

The Kabamba Waterfall is about 1 km away from the camp and offers a year round source for hydropower.

September 13, 1990

MEMORANDUM

From : Andre  Georges, REDSO/ESA, REA

To : Bob Rose, REDSO Engineering

Subject : JDY To Conduct An Environmental Assessment of The
Rwenzori Mountain Service Project

A seven day excursion was made into the Rwenzori Mountains from September 7-13, 1990 to assess the environmental soundness of camp and trail development in the Rwenzori Mountains (See Attached Report). The Rwenzori Mountain Service (RMS) is making great strides and will likely serve as a model for other projects in Africa which are attempting to return the natural resources to the people in order to offer them the stewardship of these resources and the opportunity to obtain economical benefits from these resources in order to improve their quality of life. This is extremely important since this will provide an option to the youth in many of these countries to continue living in a rural setting where as today many are forced to migrate to the major cities where unemployment, slums and crime are their only opportunities. At the same time, it is the only hope to sustainably manage the resources. Where as today, in much of Africa, they are being mined by the people who have no vested economic incentive to see them survive.

The following conclusions were drawn from this assessment:

*Shelters: The RMS has hand carried every board, nail and piece of tin roofing into one of the most remote areas of the world. Six camps have new cabins at various stages of completion. A seventh camp (Bigo) is awaiting construction of a new shelter. Most cabins are still in need of bunkbeds and mattresses. These are a vast improvement over the old Mountain Club of Uganda cabins which are made of tin and which do not aesthetically blend in with their surroundings. In two cases fires were being made inside the cabins (Nyabatata and John Maate) which should be stopped until appropriate fireplaces are available. Alternative energy sources must be found. A regular system of maintenance and cleaning needs to be developed. USAID should consider financing the above through PL-480 monies.

*Potable Water: For the moment there is no problem, but as tourism expands, pollution of water collected for drinking in the vicinity of the camps, although not a major ecological hazard, could become a public health hazard and result in a decline in tourism from people becoming ill, giving the RMS and the Rwenzoris a bad reputation. It is recommended that water be piped from upstream of all camps as is currently the case at Nyabatata Camp. USAID should

consider financing this through PL-480 monies.

*Pit Latrines: New pit latrines have been placed at all camps. In general they are well constructed, however there are a number of sites where they need to be moved to higher grounds either because of high water tables or because they are too close to the river. A regular system of cleaning the floors of these squat toilets needs to be initiated.

*Solid Waste: New rubbish pits have been placed at each site. In general they are well located. There are a few which must be moved to higher ground because of high water tables or because they are too close to the river/lake. A system of bins at each camp needs to be established, one for combustibles that will be burned and one for non-combustibles that will be carried back to RMS headquarters and buried. Only biodegradable organics should be placed in the rubbish pits. In areas where it is difficult to find adequate drainage, a gentle open well defined slope should be set aside as a rubbish site that is neither an eye sore nor an odor nuisance.

*Energy: This is a major problem since currently, groundsel and heath-moss trees, the very endemic vegetation that is the basis of the tourism in the Rwenzoris, are being cut and used for firewood for the tourists. The feasibility of combining piped water with mini-hydropower stations needs to be investigated. Other options include solar power or kerosine stoves/heaters. This may require foreign currency to undertake. However, it is urgent!

*Trail Development: The author feels that the planking in Upper Bigo Bog is the only solution if dry season wetlands are to be protected from destruction by the feet of tourists hiking through them. However, of greater significance is the destruction of habitat during the rainy season when the entire trail system becomes a quagmire. While it might be argued that the habitat destruction is still minor and contained along the foot paths, this wet season hiking is also potentially dangerous and takes away from the pleasure of the experience due to its physical rigors. Most tourists do not come prepared for this. It is advised that a major tourism campaign be mounted to promote dry season excursions. The wet season can be used by the RMS for renovation and maintenance of the trail and camp system.

*First Aid: This is one of the most remote places in the world, accessible only on foot. All guides should receive first aid training. Proper first aid kits should be issued to each guide as part of his equipment. All cabins should have portable stretchers. Eventually, a system of radios needs to be installed so that contact with headquarters and between cabins can be maintained.

*Camping Gear For Guides and Porters: The equipment of the guides and escorts, given that this is the twentieth century, is appalling. Their backpacks are made from banana plant fiber and they go into extremely cold and wet conditions guiding well equipped tourists without good sleeping bags, rain gear or warm clothes. Some hike into the snow in shorts. The guides and escorts need to be better equipped not only for their health, but because a well rested and equipped guide/escort is necessary to assure he is alert and prepared to cater to the safety and the needs of the tourist.

*Office Needs: The office staff has shown an interest in computerizing their accounting and report writing procedures.

In closing, The REO was very impressed with the accomplishments of the RMS, the enthusiasm and toughness of its personnel and with their plans for the future. It is highly recommended that they be invited to give a talk on this subject at the buffer zone management conference to be held at nearby Queen Elizabeth Park in October. It would be beneficial for them and for the other groups beginning to work towards that which they, to a large degree, have attained on their own with some support from USAID. That is an indigenous based business to gainfully employ the community in sustainable natural resources management.

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