Tourism is currently the second largest industry in the country after agriculture. Tourism is widely hailed as a bridge between poverty alleviation and biodiversity conservation in Tanzania, as it provides economic incentive to local populations to conserve rather than consume Tanzania’s unique natural resources. In 2002, then-President Benjamin Mkapa declared “a heightened onslaught on poverty, using the weapon of tourism”. Tourism is currently Tanzania’s second largest industry behind agriculture; in 2004 foreign investments in the tourism sector topped US $360 million. However, the associated benefits of job creation, increased wage earning, and infrastructure development have been concentrated around Mt. Kilimanjaro, the Northern Safari Circuit, and the coastal island of Zanzibar. For rural populations in southern Tanzania to receive direct economic benefits from tourism, the region must start taking advantage of the unique tourism offerings of the Eastern Arc Mountains.

“While definitions can be useful, what is more important is the appropriateness and quality of action, not what it is called.”

--WWF Guidelines for Community-Based Ecotourism Development
Ecosystem Complexity

“By inwardly manipulating space and time, I found I could climb the steps in biological organization from the microscopic particles of cells to the forests that clothe the mountains. A new enthusiasm surged through me.”

-E.O. Wilson
**Canopy Walks: Brazil Case Study**

**Area Occupied**
- *Mean*: 6,500 ha.
- *Max*: 8,233 ha.
- *Min*: 3,750 ha.

**Visitors Per Year**
- *Mean*: 7,327 visitors/year
- *Max*: 8,400 visitors/year
- *Min*: 750 visitors/year

**Local Employment**
- *Mean*: 94.6%
- *Max*: 100%
- *Min*: 70%

**Cost of Construction**
- *Mean*: R $105,000
- *Median*: R $70,000
- *Max*: R $85,018
- *Min*: R $22,000

**Annual Revenue**
- *Revenue Made in 1 Year (R $)*: R $450,000
- *Median Cost of Construction*: R $70,000

**Admission Fee**
- *Average Admission Price*: R $80

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**Key**

<table>
<thead>
<tr>
<th>#</th>
<th>Significant Value</th>
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<tr>
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Canopy Activity Index

Zipline
- Difficulty: ★★★★★
- Price: ★★★★★
- Adrenaline: ★★★★★
- Observation: ★★★★★
- Local Materials: ★★★★★

Tire Bridge
- Difficulty: ★★★★★
- Price: ★★★★★
- Adrenaline: ★★★★★
- Observation: ★★★★★
- Local Materials: ★★★★★

Cable Walkway
- Difficulty: ★★★★★
- Price: ★★★★★
- Adrenaline: ★★★★★
- Observation: ★★★★★
- Local Materials: ★★★★★

Tight Rope
- Difficulty: ★★★★★
- Price: ★★★★★
- Adrenaline: ★★★★★
- Observation: ★★★★★
- Local Materials: ★★★★★

Swinging Monkey Bars
- Difficulty: ★★★★★
- Price: ★★★★★
- Adrenaline: ★★★★★
- Observation: ★★★★★
- Local Materials: ★★★★★

Stationary Monkey Bars
- Difficulty: ★★★★★
- Price: ★★★★★
- Adrenaline: ★★★★★
- Observation: ★★★★★
- Local Materials: ★★★★★

Stationary Balance Beam
- Difficulty: ★★★★★
- Price: ★★★★★
- Adrenaline: ★★★★★
- Observation: ★★★★★
- Local Materials: ★★★★★

Alternating Slat Bridge
- Difficulty: ★★★★★
- Price: ★★★★★
- Adrenaline: ★★★★★
- Observation: ★★★★★
- Local Materials: ★★★★★
After careful consideration of the canopy walk catalogue, we selected a variety of canopy walk features and assembled them into a circuit. The purpose of the presentation is to explore a hypothetical experience within the context of the Udzungwa Mountains National Park. The following images illustrate that experience.
Visitor Center

A new visitor center will orient guests to the park: what to look for, where to look, and a safety briefing for the canopy walk. The main purpose of the visitor center is to educate guests about the complexity and rich biodiversity of the Eastern Arc Mountains.
PROS:
-provides environmental education for visitors
-shifts tourists gaze from "the big five" to a more well-rounded view of the forest ecosystem
-showcases scenic views of the mountainside
-utilizes local materials and labor
-provides venue for conferences, research, etc.

CONS:
-expensive to build
-high level of forest disturbance
-poor allocation of time and resources (visitor center already exists)
An open-air pavilion provides the starting point to the canopy walk experience. Here, visitors are outfitted with the appropriate safety gear (helmets, harnesses etc.) as a guide briefs them on the inner-workings of the forest ecosystem. A suspension bridge utilizes the grade change to get visitors into the canopy and begin the course.
Pavilion + Suspension Bridge

PROS:
- Easily accessed from visitors center
- Provides staging area for canopy walk
- Universal accessibility for the suspension bridge and treehouse
- Eases visitors into the canopy walk experience

CONS:
- Not strictly necessary for a canopy walk
- High upfront costs
- Suspension bridge requires extensive engineering/outside consulting
- Highly site specific (dependant on grade change)
**Tree House**

The suspension bridge terminates at a multi-tiered tree house. The tree house is the best venue from which to observe wildlife. The canopy can still be experienced in this stable, comfortable structure for those who do not wish to pursue the more adrenaline-driven portions of the canopy walk.
Tree House

PROS:
- Stable, multi-tiered viewing platform
- Allows a variety of activities and universal access
- Highly marketable/unique to Udzungwa
- Can be constructed almost entirely from local materials

CONS:
- Cost prohibitive
- Requires outside engineering/consulting
- Requires a very large tree
Cable Walkway

The cable walkway is the first true element of the canopy walk. Visitors walk across a tightrope aided by two waist high cables for balance and support. It is not highly challenging, but visitors still get the feeling of walking on air.
Cable Walkway

PROS:
- Exciting but not particularly difficult first obstacle
- 360 degree views of the canopy
- Relatively inexpensive and easy to build

CONS:
- Does not use any local materials
- Limited potential for forest observation
Adventure Circuit

Not for the feint of heart. The adventure circuit provides an optional tangent for the adrenaline junkie. Users have the choice of testing their mettle on the swinging monkey bars, a balance beam, or a tightrope walk, all while the harness guarantees safety and peace of mind.
Adventure Circuit

PROS:
- Generates a high level of excitement
- Physically challenging
- Targets young and adventuresome crowd
- Enormous amounts of fun
- Very memorable experience/feeling of accomplishment

CONS:
- Targets a niche market
- Too much fun
- Potential for injury
- Less focus on wildlife and environmental education
- May be overtaken by a pack of monkeys
- Exceeds recommended daily allowances of fun
Cargo Net Web

The cargo net web is an entirely enclosed structure and can be used for observation or play. Unlike other obstacles, it is not a bridge for forward movement but a destination in and of itself. Users can walk, climb, crawl, or lounge.
Cargo Net Web

PROS:
- No safety harness is required inside the web
- Self-contained and allows for 360 degree views of the forest
- Appeals to a wide range of users
- Acts as a destination/meeting point

CONS:
- Very large, custom-built structure
- Requires a lot of maintenance
Zipline

The zipline is the culmination of the entire canopy walk. It can either lead to another platform or directly to the forest floor. It is not physically demanding but users still get an enjoyable adrenaline kick as they zoom through the forest canopy.
Zipline

**PROS:**
- Provides an adrenaline rush without any degree of difficulty
- Relatively cheap and easy to build/maintain
- Allows users to cover a lot of ground without hiking

**CONS:**
- May not appeal to all users
- May require other trees to be trimmed or removed
- No local materials used
- Could be considered an eyesore
Implementation Phase 1
Suspension Bridge + Treehouse Platform
Implementation Phase 2

Pavillion + Treehouse Expansion
Implementation Phase 3

Visitors Center
Implementation Phase 4

Cable Walkway + Cargo Net Web + Zipline
Implementation Phase 5

Adventure Circuit
CONCLUSIONS + RECOMMENDATIONS

**Promote Udzungwa as a Tourist Location**
- market the forest and its rich biodiversity
- shift visitors attention from “the big five” to forest complexity with informative visitor center installations
- create attractions that other Tanzanian National Parks cannot emulate i.e. treehouse & canopy walk

**Design Experiences + Tours that Showcase the Forest**
- get visitors into all levels of forest strata
- carefully consider placement of canopy platforms and obstacles to allow for observation
- point out as many species to visitors as possible, not just monkeys
- juxtapose small and large forest elements so visitors begin to grasp interconnectedness of forest ecosystems

**Utilize Phased Implementation**
- implement some portion of a canopy walk as soon as possible to begin generating income
- seek funding for parts rather than the entire project
- design in circuits to maximize efficiency

**Create a Wide Range of Obstacle Types**
- make the canopy walk appealing to users of varying physical capabilities
- design both observation- and adrenaline-based elements

**Involve the Community**
- utilize local labor and materials wherever possible to reduce costs and stimulate the economy
- employ locals whenever possible so they see direct benefits from the park
- provide the catalyst for community-based tourism expansion
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