

CASE STUDY: CAMP JOHN HAY, BAGUIO CITY, PHILIPPINES

ECOSYSTEM SERVICES TEAM, ELD MOOC*

- A 690 ha former US military recreational base in the Philippines
- Premier eco-tourism haven
- The Bases Conversion Development Authority leased out 247 ha of the proclaimed John Hay Special Economic Zone to John Hay Management Corporation (JHMC).

Current Landuse in 247 ha

- Golf course- 48.43 ha (19.6%)
- Forest areas- 121.18 ha (49.1%)
- Built-up area- 77.38 ha (31.3%)

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WITHOUT PROJECT Status Quo or No Action

- John Hay Management Corporation will just retain the current use and facilities of the Camp
- These are deteriorating
- Benguet pine forest in John Hay is showing signs of ecological retrogression limiting its capacity to regenerate and enhance biodiversity
- Evidence of soil creep, soil erosion
- Spring and underground water sources will suffer
- Uncontrolled forest fires might occur
- No new investments, no new job opportunities, lesser tourists and lesser funds for improving the facilities and protecting the forests
- John Hay might lose its value as a tourist destination



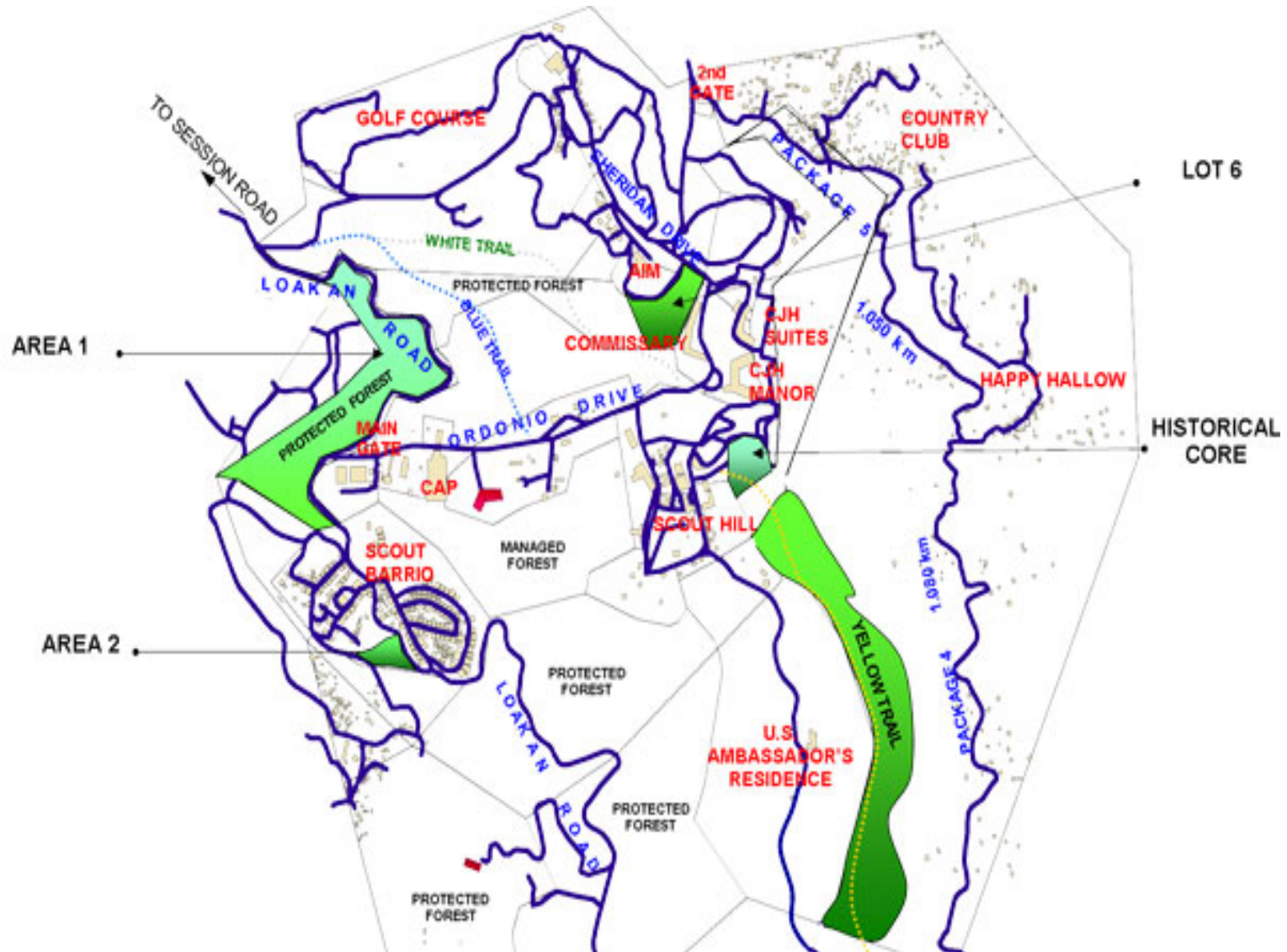
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WITH PROJECT

- Low intensity development of the 247 ha area of Camp John Hay to improve it as a tourist area
- Improved forest resource management program
- Fire protection- firebreaks, green breaks, fire patrols
- Slope stabilization, soil erosion control and gully stabilization
- Nursery establishment and seed production areas
- Enhanced silvicultural system- reforestation of open areas, enrichment planting and sanitation cuttings,
- Bambusetum and Arboretum



MAP OF CAMP JOHN HAY, BAGUIO CITY



CASE STUDY: CAMP JOHN HAY, BAGUIO CITY, PHILIPPINES

WITH PROJECT	Yr 1	2	3	4	5
BENEFITS, PhP	3,260,903	3,260,903	3,260,903	3,260,903	3,260,903
Discount Rate, 10%	0.1	0.1	0.1	0.1	0.1
Discount Factor	1.0000	0.9091	0.8264	0.7513	0.6830
Present Value = Discount Factor* Benefit	3,260,903	2,964,457	2,694,961	2,449,965	2,227,241

CASE STUDY: CAMP JOHN HAY, BAGUIO CITY, PHILIPPINES

WITH PROJECT	Yr 1	2	3	4	5
COSTS, PhP	7,375,000	1,240,000	1,240,000	1,240,000	1,240,000
Discount Rate, 10%	0.1	0.1	0.1	0.1	0.1
Discount Factor	1.0000	0.9091	0.8264	0.7513	0.6830
Present Value = Discount Factor* Cost	7,375,000	1,127,273	1,024,793	931,630	846,937

CASE STUDY: CAMP JOHN HAY, BAGUIO CITY, PHILIPPINES

WITH PROJECT	Yr 1	2	3	4	5
Benefits, PhP	3,260,903	2,964,457	2,694,961	2,449,965	2,227,241
Costs, PhP	7,375,000	1,127,273	1,024,793	931,630	846,937
Net Benefit	-4,114,097	1,837,185	1,670,168	1,518,335	1,380,304
NPV	2,291,895				

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WITHOUT PROJECT	Yr 1	2	3	4	5
BENEFITS, PhP	1,139,670	1,139,670	1,139,670	1,139,670	1,139,670
Discount Rate, 10%	0.1	0.1	0.1	0.1	0.1
Discount Factor	1.0000	0.9091	0.8264	0.7513	0.6830
Present Value = Discount Factor* Benefit	1,139,670	1,036,064	941,876	856,251	778,410

CASE STUDY: CAMP JOHN HAY, BAGUIO CITY, PHILIPPINES

WITHOUT PROJECT	Yr 1	2	3	4	5
COSTS, PhP	956,878	956,878	956,878	956,878	956,878
Discount Rate, 10%	0.1	0.1	0.1	0.1	0.1
Discount Factor	1.0000	0.9091	0.8264	0.7513	0.6830
Present Value = Discount Factor* Cost	956,878	869,889	790,808	718,917	653,561

CASE STUDY: CAMP JOHN HAY, BAGUIO CITY, PHILIPPINES

WITHOUT PROJECT	Yr 1	2	3	4	5
Benefits, PhP	1,139,670	1,036,064	941,876	856,251	778,410
Costs, PhP	956,878	869,889	790,808	718,917	653,561
Net Benefit, PhP	182,792	166,175	151,068	137,334	124,849
NPV	762,218				

CASE STUDY: CAMP JOHN HAY, BAGUIO CITY, PHILIPPINES

WITH PROJECT NPV = 2,291,895

**WITHOUT PROJECT
NPV = 762,218**

INCREMENTAL NPV = 1,529,677



CONCLUSION:

**SINCE INCREMENTAL NPV IS GREATER THAN ZERO, SELECT
WITH PROJECT OR PUSH THROUGH WITH THE PROJECT**

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ALTERNATIVE TABLES - No DISCOUNT RATE APPLIED YET

WITH PROJECT	Yr 1	2	3	4	5
Benefits, PhP	3,260,903	3,260,903	3,260,903	3,260,903	3,260,903
Costs, PhP	7,375,000	1,240,000	1,240,000	1,240,000	1,240,000
Net Benefit, PhP	-4,114,097	2,020,903	2,020,903	2,020,903	2,020,903

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ALTERNATIVE TABLES - No DISCOUNT RATE APPLIED YET

WITHOUT PROJECT	Yr 1	2	3	4	5
Benefits, PhP	1,139,670	1,139,670	1,139,670	1,139,670	1,139,670
Costs, PhP	956878	956878	956878	956878	956878
Net Benefit, PhP	182,792	182,792	182,792	182,792	182,792

CASE STUDY: CAMP JOHN HAY, BAGUIO CITY, PHILIPPINES

ALTERNATIVE TABLES WITH DISCOUNT RATE

	Yr 1	2	3	4	5
Incremental Net Benefit (at 10% Discount Rate)	-4,296,889	1,838,111	1,838,111	1,838,111	1,838,111
PV of Incremental Net Benefit (10% discount rate)	-4,296,889	1,671,010	1,519,100	1,381,000	1,255,455
Economic NPV (10% discount rate)	1,529,677				

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DETAILS OF BENEFITS OF THE PROJECT- FOCUS ON FORESTRY COMPONENT

With Project		
Benefits, PhP	PhP per ha	For 247 Ha project area
Climate regulation	1,467	362,230
Disturbance regulation	19	4,673
Water regulation	19	4,673
Water supply	32	7,825
Erosion control and sediment retention	997	246,269
Green breaks (5 ha)	102	25,105
Soil formation	3,752	926,823
Nutrient cycling	902	222,685
Waste treatment	19	4,673
Biological control	444	109,767
Food production	1,435	354,405
Raw materials	165	40,755
Genetic resources	141	34,778
Recreation - \$243 mean WTP per visit (TCM study - ELD MOOC assign 2014)	10,692	10,692
Cultural	67	16,549
Carbon sequestration per ha, SINP 2005	1,918	473,746
Fire damages avoided (50 m wide firelines along the base perimeter; PhP 360,000 per year for fireguards, CJH EIS)		360,000
Watershed protection - SINP 2005	224	55,254
TOTAL		3,260,903

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DETAILS OF COSTS OF THE PROJECT- FOCUS ON FORESTRY COMPONENT

Costs, PhP	Operations Phase				
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Forest Management Program					
Firebreak (tree planting 25 to 30 m wide greenbreaks along Loakan Road and 1-2 m wide along creeks)		50,000	50,000	50,000	50,000
Green breaks (5 ha)	125,000				
Fire patrol/guards		360,000	360,000	360,000	360,000
Training, education, extension		30,000	30,000	30,000	30,000
Fire fighting equipment	5,000,000				
Nursery Establishment	250,000				
Nurseery Operations and Maintenance		100,000	100,000	100,000	100,000
Silvicultural system (ANR, tree planting, grass planting)		500,000	500,000	500,000	500,000
Bambusetum/Arboretum		100,000	100,000	100,000	100,000
Seed Production Area		100,000	100,000	100,000	100,000
Soil Erosion control and gully stabilization (barrier nets, drains, retaining walls, silt traps, check dams, vegetative measures)	2,000,000				
TOTAL	7,375,000	1,240,000	1,240,000	1,240,000	1,240,000

CASE STUDY: CAMP JOHN HAY, BAGUIO CITY, PHILIPPINES

DETAILS OF COSTS WITHOUT THE PROJECT (NO ACTION) – FOCUS ON FOREST ECOSYSTEM

Without Project		
(Cost of Inaction)	PhP per ha	x 247 ha Proj area
Costs, PhP		
Landslides or Soil erosion (Source: Magat watershed, 2005 SINP)	3,874	956,878

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DETAILS OF BENEFITS WITHOUT THE PROJECT (NO ACTION) – FOCUS ON FOREST ECOSYSTEM

Benefits (of Status Quo, No Action)	PhP Per ha per yr (2013)	x 121 ha forest area in CJH, PhP
Climate regulation	1,466.52	177,449
Disturbance regulation	18.92	2,289
Water regulation	18.92	2,289
Water supply	31.68	3,833
Erosion control and sediment retention	997.04	120,642
Soil formation	101.64	12,298
Nutrient cycling	3,752.32	454,031
Waste treatment	901.56	109,089
Biological control	18.92	2,289
Food production	444.40	53,772
Raw materials	1,434.84	173,616
Genetic resources	165.00	19,965
Carbon sequestration per ha, SINP 2005	67.00	8,107
TOTAL		1,139,670