



Neemrana Hotel (Fort Palace) Carbon Footprint Control Project

‘Realise’ Project Summary Report

DRAFT

August 2010

Prepared by:

Vivek Gilani

Environmental Engineer (E.I.T)

Research Assistants

Dheeraj Bansal (*IIT B.Tech Program*)

Savita Vijayakumar (*BMM*)

1 Project Scope

1.1 Activity Boundaries

Table 1 - Activity Boundary Summary

No.	Activity Group	Activity Type	Scope Type
1	Fuel	Cooking Fuel	Scope 1
2	Fuel	Stationary Combustion	Scope 1
3	Travel	Vehicular Travel - Private	Scope 1
4	Logistics	Logistics - Air	Scope 1
5	Logistics	Logistics - Ocean	Scope 1
6	Logistics	Logistics - Road	Scope 1
7	Logistics	Logistics - Rail	Scope 1
8	Electricity	Electricity	Scope 2
9	Water	Water	Scope 2
10	Travel	Intercity Travel - Air	Scope 3
11	F&B	Meat	Scope 3
12	F&B	Seafood	Scope 3
13	F&B	Dairy	Scope 3
14	F&B	Rice	Scope 3
15	F&B	Alcoholic Beverages	Scope 3
16	F&B	Bottled Water / Drinks	Scope 3
17	F&B	Jams	Scope 3
18	F&B	Tea	Scope 3
19	F&B	Coffee	Scope 3
20	Waste	Waste Generation	Scope 3
21	Consumables	Paper	Scope 3
22	Consumables	Plastic	Scope 3
23	Consumables	Glass	Scope 3
24	Consumables	Fertilizer	Scope 3
25	Consumables	Pesticides	Scope 3
26	Consumables	Cleaning Supplies	Scope 3
27	Consumables	Chemicals	Scope 3
28	Construction Materials	Construction/Renovation	Scope 3

1.2 Stakeholder Boundaries

Table 2 - Stakeholder Boundary Summary

ID	Stakeholder Name
Group 1	<i>Primary Realizer (Neemrana Fort)</i>
Group 2	<i>Fruit Jam Production Facility (Nainital)</i>

1.3 Life-cycle Boundaries

Table 3 - Emission Factor LCA Status

No.	Activity Type	Emission Factor Status
1	Cooking Fuel	Direct Emissions
2	Stationary Combustion	Direct Emissions
3	Vehicular Travel - Private	Direct Emissions
4	Logistics - Air	Direct Emissions
5	Logistics - Ocean	Direct Emissions
6	Logistics - Road	Direct Emissions
7	Logistics - Rail	Direct Emissions
8	Electricity	Direct Emissions, Transmission
9	Water	Electricity
10	Intercity Travel - Air	Direct Emissions
11	Meat	Partial LCA
12	Seafood	Partial LCA
13	Dairy	Partial LCA
14	Rice	Partial LCA
15	Alcoholic Beverages	Partial LCA
16	Bottled Water / Drinks	Partial LCA
17	Jams	EF Not Available
18	Tea	EF Not Available
19	Coffee	EF Not Available
20	Waste Generation	Partial LCA
21	Paper	LCA
22	Plastic	LCA
23	Glass	LCA
24	Fertilizer	LCA
25	Pesticides	LCA
26	Cleaning Supplies	LCA
27	Chemicals	LCA
28	Construction/Renovation	LCA

2 Results

2.1 Resource Consumption Inventory

**Table 4 – Neemrana Hotels (Fort Palace) Resource Consumption Inventory
(Period: June 2009 – May 2010)**

	Activity Group	Qty.	Meas. Unit
	Total Customers Served	22,614	overnight stays
	Total Meals Served	46,218	meals
1	Scope 1 (Direct Emissions)		
1.1	Fuel - Cooking Fuel	21,551	kgs
1.2	Fuel - Generator & Motor Fuel	25,220	kgs
1.3	Other - Fireworks & Other Fuel	342	kgs
2	Scope 2 (Indirect Emissions - Electricity & Water)		
2.1	Electricity	1,759,343	kWh
2.2	Water	38,377,571	liters
3	Scope 3 (Indirect Emissions - Other)		
3.1	Travel & Logistics		
3.1.1	Domestic Air Travel	39,073	pass-kms
3.1.2	International Air Travel	80,040	pass-kms
3.1.3	Public Road & Rail Travel	0	pass-kms
3.1.4	Private Vehicular Travel ³	9,651	liters fuel
3.1.5	Logistics	0	v-kms
3.2	Construction/Renovation		
3.2.1	Cement	72,000	kgs
3.2.2	Brick	26,880	kgs
3.2.3	Concrete	0	kgs
3.2.4	Limestone	0	kgs
3.3	Food, Beverage, Waste		
3.3.1	Meat & Seafood	11,255	kgs
3.3.2	Dairy	23,208	kgs
3.3.3	Rice	2,850	kgs
3.3.4	Alcoholic Beverages	8,562	kgs
3.3.5	Bottled Water / Drinks	58,271	kgs
3.3.6	Solid Waste	94,924	kgs
3.4	Paper, Plastic, Consumables		
3.4.1	Paper & Cardboard	84,648	kgs
3.4.2	Plastic	56,600	kgs
3.4.3	Fertilizers & Pesticide	101,915	kgs
3.4.4	Cleaning Supplies	8,357	kgs
3.4.5	Glass	3,420	kgs
3.4.6	Tin	432	kgs

2.2 Total Carbon Footprint

**Table 5 Neemrana (Fort Palace) Activity-Differentiated Total Carbon Footprint
(Period: June 2009 – May 2010)**

	<i>Footprint Head</i>	<i>Carbon Footprint (tons CO₂e)</i>	<i>% Contribution</i>
1	<i>Scope 1 (Direct Emissions)</i>		
1.1	Fuel - Cooking Fuel	58.8	1.8%
1.2	Fuel - Generator & Motor Fuel	80.5	2.5%
1.3	Other - Fireworks & Other Fuel	1.1	0.03%
	<i>Sub-Total</i>	140	4.3%
2	<i>Scope 2 (Indirect Emissions - Electricity & Water)</i>		
2.1	Electricity	2741.7	83.5%
2.2	Water	76.8	2.3%
	<i>Sub-Total</i>	2,818	85.9%
3	<i>Scope 3 (Indirect Emissions - Other)</i>		
3.1	<i>Travel & Logistics</i>		
3.1.1	Domestic Air Travel	4.5	0.1%
3.1.2	International Air Travel	7.8	0.2%
3.1.3	Public Road & Rail Travel	0.0	0.0%
3.1.4	Private Vehicular Travel	25.6	0.8%
3.1.5	Logistics	0.0	0.0%
	<i>Sub-Total</i>	38	1.2%
3.2	<i>Construction/Renovation</i>		
3.2.1	Cement	35.9	1.1%
3.2.2	Brick	5.9	0.2%
3.2.3	Concrete	0.0	0.0%
3.2.4	Limestone	0.0	0.0%
	<i>Sub-Total</i>	42	1.3%
3.3	<i>Food, Beverage, Waste</i>		
3.3.1	Meat & Seafood	84.3	2.6%
3.3.2	Dairy	58.4	1.8%
3.3.3	Rice	2.6	0.1%
3.3.4	Alcoholic Beverages	4.9	0.1%
3.3.5	Bottled Water / Drinks	0.0	0.0%
3.3.6	Solid Waste	54.5	1.7%
	<i>Sub-Total</i>	205	6.2%
3.4	<i>Paper, Plastic, Consumables</i>		
3.4.1	Paper & Cardboard	6.0	0.2%
3.4.2	Plastic	2.2	0.1%
3.4.3	Fertilizers & Pesticide	0.1	0.0%
3.4.4	Cleaning Supplies	20.1	0.6%
3.4.5	Glass	10.6	0.3%
3.4.6	Tin	NA	
	<i>Sub-Total</i>	39	1.2%
Total	<i>(tons CO₂e)</i>	3,282	100%
	<i>Per-Overnight Stay (tonsCO₂e)</i>	0.145	

Figure 1 – Neemrana (Fort Palace) Activity Contribution to Total Carbon Footprint

