

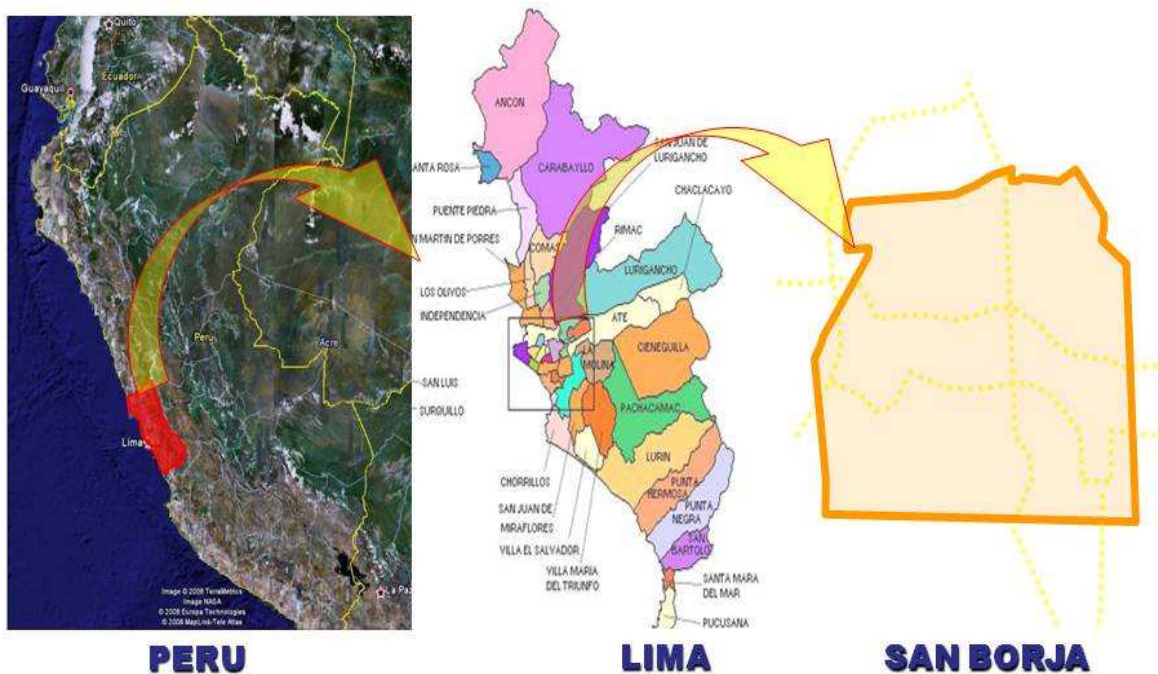
Survey of low carbon towns in APEC

Name of Town: San Borja

Location: The Town of San Borja is a local government within the Peruvian Economy, its located in the department and province of Lima, covers an area of 9.96 Km², its boundaries are:

- North: Towns of La Victoria, San Luis and Ate
- South : Towns of Surquillo y Santiago de Surco
- East: Town of Santiago de Surco
- West : Town of San Isidro

Picture N° 1 Location of San Borja



Background Information

Area covered : 9.96 Km²

Population in this area : 110,000 Hab.

Major functions or economics activities: Trade, Residential

Questions regarding the low carbon town

**a.
Description
of town**

Type of town (Please check the Box):

☐ Urban (Central Business District), ☐ Urban(Mainly consists of commercial area),

☒ **Urban (Mainly consists of residential Area)**, ☐ Village(Village), ☐ Village

(Island), ☐ Others(specify):

Population (millions): 0.110

Size of town(ha or km2): 9.96 Km2

Major function of town: Residential and Trade

Town Infrastructure:

100 (%) Coverage Rate of Population with Access to Tap Water

Housing with Water supply	Number of Housing	%
Connection to the water supply inside the house	25723	91
Connection to the water supply outside the house but inside the building	2493	8.8
Water supply of public use	16	0.1

SOURCES: Instituto Nacional de Estadística e Informática (INEI) – National Survey of 1981, 1993, 2005 y 2007.

83.1 (%) Coverage Rate of Population with Access to Gas

Energy used to cook	Number of Housing	%
Use gas	23949	84.1
Use firewood	-	-
Use dung	-	-
Use kerosene	195	0.7
Use coal	10	0.04
Use electricity	4250	14.9

SOURCES : Instituto Nacional de Estadística e Informática (INEI) – National Survey of 1981, 1993, 2005 y 2007.

0 (GW) Power Plants (Specify type, e.g. coal, geothermal, etc.)_____

756.84 (Units) Number of Public Transportation Vehicles per 10 000 Population

87.5% Telephone (sets/100 persons)Popularization Rate of Telephone

85.4% Mobile Telephone (Including Mobile Telephone)

13.15 m2 Per Capita Area of Paved Roads

12.2 m2 Per Capita Public Green Areas

Climate conditions:

The town of San Borja, as a part of Lima, has a subtropical and desert climate; the temperature is warm with moisture of 95%. The temperature ranges changes between 17° and 27° C. Presents little and superficial drizzle especially during winter.

b.
Expected
future
develop-
ment

Expected population growth (specify time period): 0.99 annual growth. 2010

SAN BORJA TOWN: POPULATION 1981 - 2011* RATE OF GROWTH

YEAR	POPULATION	RATE OF GROWTH ANNUAL AVERAGE
1981	99,236	0.00
1993	99,947	0.06
2007	105,076	0.23
2008	105,930	1.02
2009	106,986	1.00
2010	108,042	0.99
2011	109,098	0.99

SOURCE: Instituto Nacional de Estadística e Informática (INEI) – National Survey of 1981, 1993 y 2005.

(*) Población del 2008 y 2009 Estimada y Proyectada.

Expected demographic changes (specify time period):

SAN BORJA TOWN: POPULATION DENSITY, 1981 – 2011

YEAR	POPULATION	SURFACE	POPULATION DENSITY(km ²)
1981	99,236	9.960	9,963
1993	99,947	9.960	10,035
2007	105,076	9.960	10,550
2008	105,930	9.960	10,636
2009	106,986	9.960	10,742
2010	108,042	9.960	10,848
2011	109,098	9,960	10,954

SOURCE: Instituto Nacional de Estadística e Informática (INEI) – NATIONAL SURVEY de 1981, 1993 y 2007.

(*) POPULATION SINCE 2008 IS PROYECTED AND ESTIMATED

Expected industrial/ economic changes (specify time period):

Other:

TOWN STRATIFICATION BY HOUSEHOLD INCOME PER CAPITA: POPULATION, HOMES AND BLOCK. (UNITS)

STRATA	INCOME PER CAPITA FOR HOME (CURRENT: NUEVOS SOLES*)	POPULATION	HOMES	%
HIGH	1700.01 +	59696	17670	58.97
MIDDLE HIGH	900.01 -1700.00	36638	9904	36.19
MIDDLE	550.01-900.00	4832	1179	4.77
MIDDLE LOW	380.01-550.00	64	18	0.06
LOW	380 -	0	0	0
	TOTAL	101,230	28771	100

Source: INEI 2009. Metropolitan Lima layered planes by blocks

The exchange rate for 2009 was: S/. 2.88 per 1 US\$

POPULATION OF SAN BORJA TOWN BY ACTIVITY-2007

ACTIVITY	POPULATION	%	
EAP	50898	51.8%	100
BUSY	49416	50.3	97.1
NOT BUSY	1482	1.5	2.9
NO EAP	47276	48.2	-

SOURCE: INEI. Survey of Population and Housing 2007.

EAP: Economically Active Population

ECONOMICS SECTOR IN THE TOWN OF SAN BORJA

	SHOPPING CENTERS	FINANCIAL CENTERS
UNITS	3	10
AREA (M2)	34777	6550

SOURCE: Equipo Tecnico ST/CTLC. Junio 2010

c. What is the policy, vision, or objective of the town? Please specify the actual goal and its metrics, if applicable.

VISION

SAN BORJA, A MODEL TOWN, SAFE AND HEALTHY, ABLE TO GUARANTEE THE QUALITY OF LIFE OF ITS COMMUNITY

POLICY

Overall, The Environmental Policy of San Borja is in line with the National Policy that aims to improve the quality of life of people by assuring the existence of healthy ecosystems, viable and functional in the long term and sustainable development of community through prevention, protection and restoration of the environment and its components, the conservation and sustainable use of natural resources, responsible and consistent with respect for fundamental rights of the person.

OBJECTIVES

- 1.- Achieve conservation and sustainable use of natural heritage of the town, with eco efficiency, equity and social welfare, with emphasis on integrated management of natural resources y reduction of greenhouse gases emissions with emphasis in the CO₂
- 2.- Ensure adequate environmental quality health and integral development of people, recovering degraded environments and promoting integrated management of environmental risks, as well as clean production and eco-efficient.
- 3.- Strengthening environmental governance and the National Environmental Management System

at the local level, under the guidance of the Ministry of Environment.

4.- To achieve a high degree of awareness and environmental culture in the town, with citizen participation that are informed and aware of process of decision making for sustainable development

5.- Achieve eco-efficient and competitive development of public and private sectors, promoting the potential and local economic and environmental opportunities

ENVIRONMENTAL ACTION PLAN GOALS BY 2021

- **CO₂ emissions reduction by 30%** taking year 2000 as the baseline, through improvements in the efficiency of energy use, promotion of the use of clean energy, green building, promotion of intelligent transport systems and environmental management
- 50% of the district's green areas are irrigated with treated domestic sewage
- 100% recyclable solid wastes are reused, and 100% non-reusable wastes are treated and disposed properly.
- 20% reduction in hazardous waste generation in relation to 2011
- Ensuring compliance with the National Air Quality Standards through forestation programs and source emission reduction.

d. Brief outline of the low carbon town development plan:

- CO₂ emissions reduction by 30% taking year 2000 as the baseline, through improvements in the efficiency of energy use, promotion of the use of clean energy, green building, promotion of intelligent transport systems and environmental management

e. Current stage of development of town (Please check the box)	<input checked="" type="checkbox"/>	Planning stage (Target date of start and completion of the project)
	<input type="checkbox"/>	Construction stage (Date of start and completion of the project)
	<input type="checkbox"/>	Already existing (Date of start and completion of the project)

f. Does your low carbon town or development plan have CO₂ emission reduction target? (If yes, please answer following questions from (g) to (i))

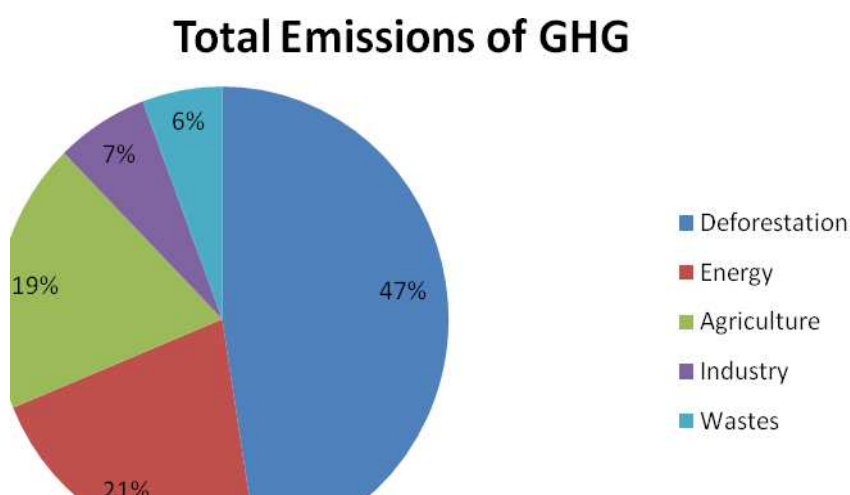
Yes, we want to reach a 30% CO₂ emissions reduction by 2021 taking year 2000 as baseline year

g. What are CO₂ emissions reduction target and date to achieve this?

30% CO₂ emissions reduction by 2021 taking year 2000 as baseline year

h. Estimated CO2 emissions before and after the completion of the project:

Emissions of GHG (greenhouse gasses) produced by Peru are considerably low in relation to the developed countries. According to the national inventory of emissions of Greenhouse Gases in the year 2000, made total emissions / removals of greenhouse gases has been 120,023 Gg CO₂eq. Emissions per capita amounted to 4.7 tones of e CO₂ per year (see Picture 2)



Source: Peruvian Environment Ministry.

As part of its environment strategy policy, the Peruvian Government, in October 2003 by Supreme Decree No. 086–2003–PCM, approved the National Strategy on Climate Change (NSCC), Version 8, for the mitigation and adaptation of climate change (El Peruano 2003). The main objectives of the NSCC are to reduce climate change impacts by means of integrated studies of vulnerability and adaptation and to control both local pollution and greenhouse gas emissions by means of the use of renewable energies and energy efficiency programs in production sectors. During the Conference of Parties 14 (COP14) in 2008, Peru agreed to reduce its emissions by 47% (0.06 gigatonnes of CO₂-e) over 10 years through reforestation management

The town of San Borja is located on the central coast of Peru within the urban area of the capital Lima for 2000, with a population of 101.000 residents, an estimated CO₂ emissions of the city reached the 162.200 tons, the main source of transportation sector emissions (49%), followed by the residential sector (33%) and Commercial (18%).

Today the town of San Borja has a population of 110.000 residents, with ongoing changes, especially in the transport sector with the next initial operation of massive system of public transportation (electric train) and the adoption of laws for the renovation of fleet, bringing out older vehicles principally from the public service. A residential level to promote energy efficiency in devices and the upcoming launch of the new national regulation of buildings that includes for the first time parameters of eco-efficiency, therefore it is estimated that the reduction target of 30%

of based emissions by 2000 is feasible

i. What indication will you use to monitor CO2 reduction in each sector? Who is responsible for establishing and keeping of the indicators?

- Reduction in the amount of traffic (transportation sector)
- Public transportation conversion rate (transportation sector)
- Rate of growth of Intelligent Transport System (ITS) (Transportation sector)
- Rate of use of PV systems (Residential sector)
- Units of solar water heaters for km2 (Residential sector)
- Rate of roof greening in town
- Units of biomass power generation in town
- Units of wind power generation in town
- Units of trees planted in the Forestry Program

j. Key examples of low carbon measures employed or to be employed:

- Demand side -	
Urban functions	<input type="checkbox"/> Compact city design, <input checked="" type="checkbox"/> Heat island phenomenon countermeasures, <input type="checkbox"/> Efficient road arrangement plan, <input type="checkbox"/> Well developed public transportation, <input checked="" type="checkbox"/> Car sharing, <input checked="" type="checkbox"/> Intelligent Transport System(ITS), <input type="checkbox"/> Plan for highly efficient infrastructure, <input type="checkbox"/> Others (specify):
Industry sector	<input type="checkbox"/> Factory energy management system, <input checked="" type="checkbox"/> Others (specify): We don't have industry sector
Transport sector	<input type="checkbox"/> Bus Rapid Transit(BRT), <input type="checkbox"/> Light Rail Transit(LRT), <input checked="" type="checkbox"/> Intra-city community bicycle, <input type="checkbox"/> Electric vehicle, <input type="checkbox"/> Electric Busses, <input checked="" type="checkbox"/> LED street lighting, <input checked="" type="checkbox"/> Others (specify): Electric Train Massive Transport System
Residential sector	<input type="checkbox"/> Fuel cells, <input type="checkbox"/> Low or zero emission house(<input type="checkbox"/> Eco-friendly home appliances, <input type="checkbox"/> PV panel, <input checked="" type="checkbox"/> Solar heated hot water supply facilities, <input type="checkbox"/> Heat-pump hot water supply with natural refrigerant, <input checked="" type="checkbox"/> Use of natural light, <input type="checkbox"/> Low emission glass), <input type="checkbox"/> Home Energy Management System(HEMS), <input type="checkbox"/> Thermal storage air conditioning system, <input type="checkbox"/> Others (specify):
Commercial sector	<input type="checkbox"/> Low or Zero emission Building (<input type="checkbox"/> High insulation/Highly airtight materials, <input type="checkbox"/> Sun shading system, <input type="checkbox"/> High-performance façade, <input type="checkbox"/> Low emission glass, <input type="checkbox"/> Double skin façade, <input checked="" type="checkbox"/> Roof greening, <input type="checkbox"/> Highly efficient air conditioning facilities, <input checked="" type="checkbox"/> LED/Inverter lighting, <input checked="" type="checkbox"/> Use of natural light), <input type="checkbox"/> Building Energy Management System(BEMS), <input type="checkbox"/> Thermal storage air conditioning system, <input type="checkbox"/> Others (specify):
Other	Specify:

- Supply side -

Renewable energy: ☒ PV power generation, ☒ Solar thermal utilization, ☒ Biomass power generation, ☒ Wind power generation, ☐ Geo-thermal power generation, ☐ Micro-hydroelectric power generation, ☐ Others (specify):

Untapped energy ☐ Use of sea/river water, ☐ Use of waste heat such as waste incineration plants, ☐ Use of waste heat such as sewage treatment plants, ☐ Use of waste heat from factories, ☐ Others (specify):
Forestry Program 50,000 trees/4 years

Other ☐ District heating cooling(DHC) system, ☐ Others (specify):

- Both Demand and Supply sides –

☐ Advanced Metering systems, ☐ Smart grid system, ☐ Electric condenser system, ☐ Area energy management system(AEMS), ☐ Others (specify):

k. Estimated cost savings in implementing low-carbon measures (per year/per unit of energy, etc).

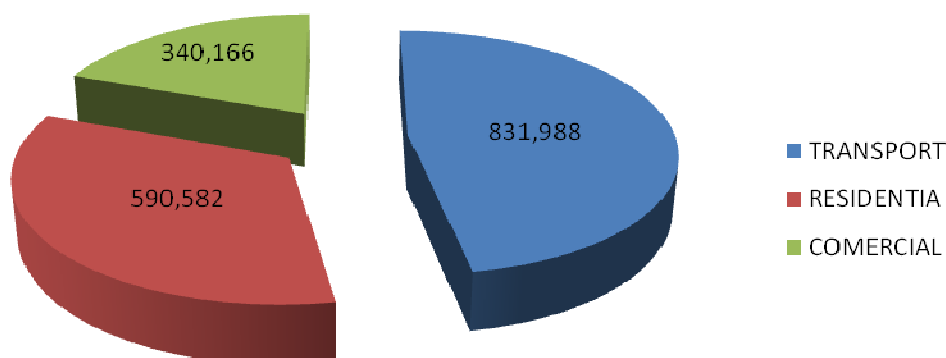
Activity/Sector	Potential Source	Estimated cost savings
Residential sector	Solar heated hot water supply facilities	3 US\$/household/month
Transport sector	Led street lighting	2 US\$/kwh.light/month
Transport sector	Intra-city community bicycle	2US\$/car/month

I. Estimated energy consumption before and after the completion of the project:

Emissions and energy consumption in MMBTU have been estimated for 2000 as shown in the table below and Picture N ° 3.

SECTOR	TON eCO2	Energy MMBTU
TRANSPORT	79,497.6	831,988
RESIDENTIAL	53,539.2	590,582
COMMERCIAL	29,203.2	340,166
TOTAL	162,240.00	

Energy (MMBTU) Consumption by the year 2000



Source: San Borja City Hall

It is expected that major reductions in energy consumption are linked to both transportation and residential sectors

m. What central/local government departments are/will be involved in development of project? Please specify which stages of the project they will be involved in (i.e. developmental, intermediary, implementation, etc.):

Development Plan: Ministry of Energy, Mines and Ministry of Environment and San Borja City Hall

Intermediary and strategy: San Borja City Hall: Department of City Services and Environment, Department of Administration and Municipal Finance and Management City Hall.

Implementation: Department of City Services and Environment in San Borja City Hall

n. What private company, non-government organizations are/will be involved in development of project?

Please specify which stages of the project they will be involved in:

There is not any private company participating in this phase of the project, but the community organized is actively participating through the social organizations such as Juntas Vecinales.

o. How is/will be the development of the town funded?

(Discuss financing availability, finance options and financial structure i.e. private, public, etc.)

Currently the municipality of San Borja is in the planning stage, the costs are assumed by the municipality itself. It is expected that the main source for funding in stages of implementation of the plan come from own resources of the municipality of San Borja which ensures its sustainability over time, but it has also planned to invite private companies, non government organizations and other financial organizations to participate with their contributions during next stages, through strategic alliances that permit enhance the plan

p. Other relevant information, if any:

None