Review on the LCT Planning of La Molina District

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Findings on the LCT Planning of La Molina District

1. La Molina is an existing city
   - Residential
   - 178,000 people
   - 65.75 km^2

2. Redevelopment of existing areas and make sure new developments are low carbon (Planning Stage)

3. Model Sustainable City
   - Greener (more trees)
   - Walkable and accessible
   - Promote healthy lifestyle and community spaces
   - Respect and love for nature

4. Focus on 6 areas; Mobility, Urban Greenery, Solid Waste Management, Water, Public Spaces, Energy

Findings on the LCT Planning of La Molina District

5. Reduce emissions by 12% by 2027 compared to emissions of 2019

6. 2019 baseline estimated emissions is 260,000 tCO_2

7. Low carbon measures (Demand side):
   - Reduce urban heat island effect (planting more trees)
   - LED street lights
   - Cycling pathways
   - Energy efficient home appliances (energy rating)
   - Solar PV
   - Green roofs

8. Low carbon measures (Supply side):
   - Renewable energy (Solar PV and Wind)
   - Waste heat recovery

Evaluation on the Application of the LCT- I System

Please assess (✓) the self-evaluation results of the LCT-I System.

Question	Excellent	Good	Average	Below Average	Poor
Information of the LCT-I Volunteer Town			✓		
Understanding of each LCT-I System indicators		✓			
Explanation (evidence) provided for the self-evaluation					✓
Collection of data necessary for the evaluation			✓		
Calculation of CO2 emissions		✓			
Transparency in assessment	✓				

Feedback on the Self-Evaluation

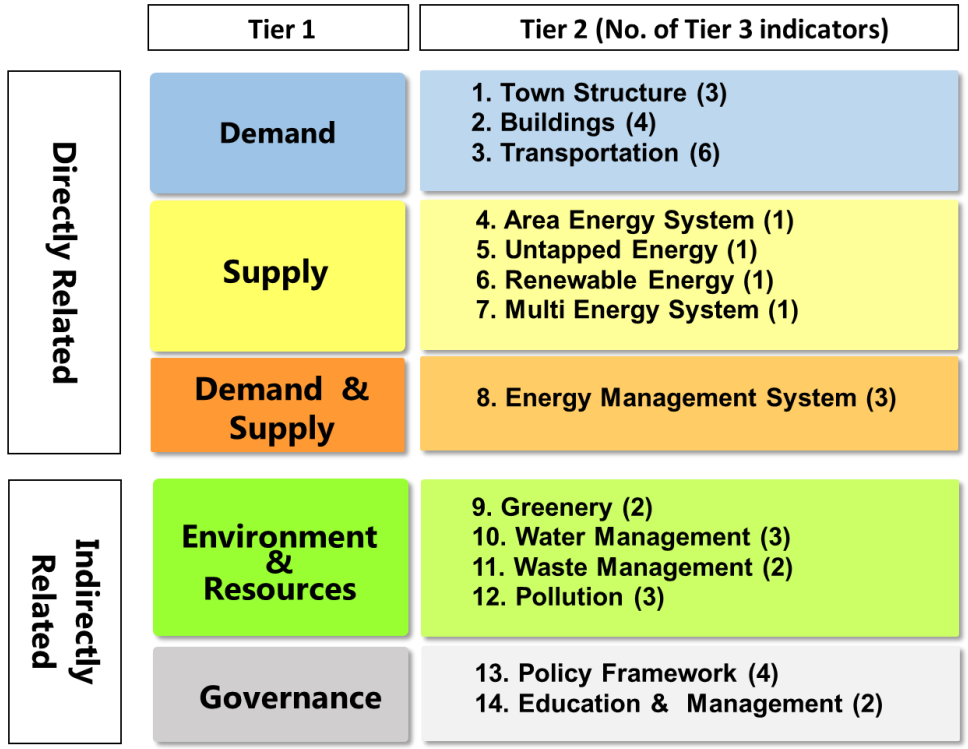
Tier 1	Tier 2	Tier 3	Comments
Demand	Town Structure	Adjacent Workplace and Residence	Based on the evidence provided, it is not very clear where are the commercial building and where are the residential buildings. As this is 'Residential Oriented Town' there needs to be at least 30% of the total floor area of all buildings need to be commercial buildings to score 5 points for this category. A clearer version of the provided map would have made it easier to estimate the mix between the residential and commercial areas.

Tier 1	Tier 2	Tier 3	Comments
Demand	Buildings	Thermal Performance / Energy Saving Equipment Performance	Based on the evidence provided, the assessment is accurate. There are plans to provide eco-friendly home appliances and PV Panels for the residential sector as well as green roofs for the commercial sector. Just to note that the most impact on energy conservation of a building is from the design of the building itself. As this is a new development and I believe that there will be many new buildings that will be coming on board, then it would make sense to have green building design / passive building requirements.
Demand	Transportation	Transportation Infrastructure Planning	Based on the evidence provided, the assessment is accurate. The only example that I see is the intra-city community bicycle initiative. This is a good initiative and can greatly help to reduce the number of private vehicle use in the city.

Tier 1	Tier 2	Tier 3	Comments
Supply	Renewable Energy	Introduction of Renewable Energy	Based on the evidence provided, the assessment is accurate. It looks like plans are being drawn up to tap into renewable energy sources such as Solar PV and wind. This is a good start and I hope this initiative will continue and be rolled out more aggressively over the next few years.
Environment & Resource	Greenery	Securing Green Space	Based on the evidence provided, there is not enough information to properly assess the amount of green space that is in the city. Nevertheless, as the score submitted is 1* for both the Green Shade and Formation of Greening then it should be accurate as long as there are trees within the city.
Environment & Resource	Waste Management	Reuse of Waste Products	Based on the evidence provided, there is not enough information to show that waste seperation is being carried out. Nevertheless, it is a very good initiative and can drastically reduce the amount of waste that goes to landfills.

Tier 1	Tier 2	Tier 3	Comments
Governance	Policy Framework	Efforts Towards a Low Carbon Town	Based on the evidence provided, the assessment seems to be accurate. However, the fact that this city is participating in the LCMT initiative is a very good first step that can lead to a more comprehensive policy on low carbon cities.
Governance	Education & Management	Life Cycle Management	Based on the evidence provided, the assessment seems to be accurate. The participation of this city in the LCMT initiative is part of the education process and can be turned into something more formal.

For the Improvement



There is room to improve all Tier 2 items.

Advantage of Planning stage is that the plans can still be developed and enhanced.

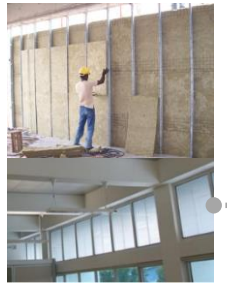
A lot of the solutions are co-related and can be solved by implementing a few solutions. For example:

- Building passive design can address Buildings and Energy as well
- Greenery can address Urban Heat Island Effect and Air Quality at the same time

Cost effective to tackle it as a whole because it is all integrated.

Ideas for the LCT Development - Energy

5 - 45% Reduction in Consumption



Passive Design
North-South building orientation and carefully designed building envelope (roof, walls, windows and floors) to minimize unwanted heat gain.

Solar PV
Rooftop solar, self consumption

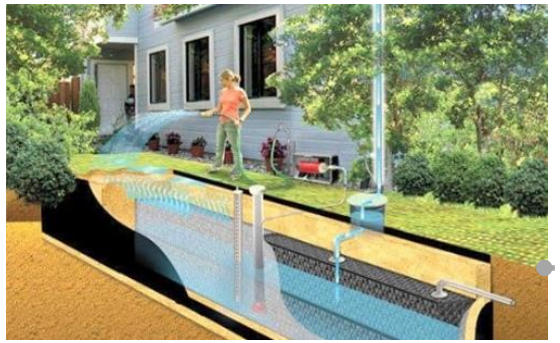
LED Street Lighting

Energy Efficient Fixtures & Appliances
Energy efficient lighting such as LED paired with sensors can optimise energy use.

Air Conditioning & Mechanical Ventilation (ACMV)
Optimise, retrofit or overhaul the air conditioning system.

Ideas for the LCT Development - Water

10 - 60% Reduction in Consumption



Rainwater Harvesting - Home
Reduce consumption of treated water for outdoor and non-human use.

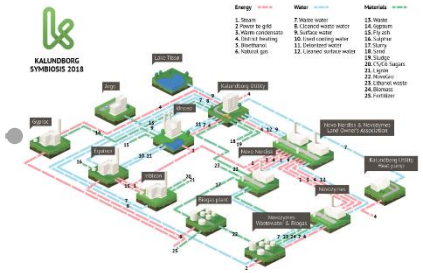
Greywater Recycling for Industrial Use

Rainwater Harvesting - City
Using existing infrastructure to capture rainwater that can be used by the city for outdoor cleaning or landscape watering.

Water Efficient Fittings for Households & Industry

Ideas for the LCT Development - Waste

80 - 90% Waste Diverted from Landfill

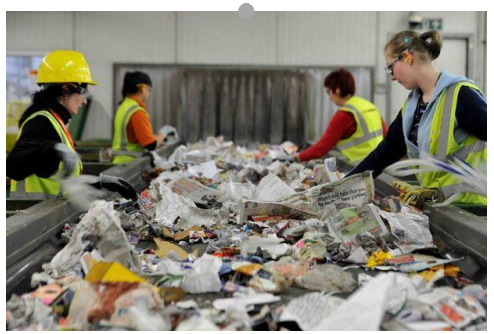


Industrial Symbiosis

3R
Products that reduce waste generation in the first place and if the product has served its primary purpose, it can be reused for another purpose and if it really needs to be thrown, it can be recycled.

Micro Waste to Energy
Local solutions for cities or industries

Food Waste for Compost or Biogas
Targeted food waste from specific industry such as F&B or Food Processing industry that can be turned into compost or generate biogas for energy.



Material Recovery Facility
These MRF Centres can recover valuable resources that can be used as a raw material for industry.

Ideas for the LCT Development - Mobility

30 - 50% Reduced Air Pollution

EV Bus
Electric busses providing first mile and last mile connectivity within the city.

Cycling Lanes & Facilities
Dedicated cycling lanes in cities and supporting facilities in buildings.

EV Fleet
Electric vehicle fleet for company operations and management.

EV Trucks
Electric trucks for logistics and goods movement.

EV Charging Stations
Public and private electric vehicle charging infrastructure.

Example City – Shah Alam, Selangor, Malaysia

- LCC Registration No.:-
  LCC-Z-B100-01-0001
- Zone Name:-
  PUSAT BANDAR SEKSYEN 14, SHAH ALAM
- Organisation Name:-
  MAJLIS BANDARAYA SHAH ALAM
- City:-
  SHAH ALAM
- State:-
  SELANGOR
- Local Authority:-
  MAJLIS BANDARAYA SHAH ALAM

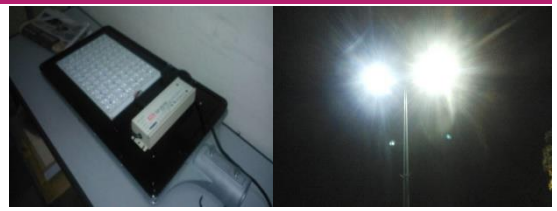
Zone Area (ha):	Population Baseline:
159.89 / 0.55%	8,957
PBT Area (ha):	**Population Final:**
29,030.00	8,957

Elements: Baseline Year	
Energy	2015
Water	2015
Waste	2015
Mobility	2015
Greeneries	2015

Example City – Shah Alam, Selangor, Malaysia

ENERGY

- Installation of LED Street Light



Location: Main thoroughfare at city centre

*Estimated cost reduction from energy consumption is by **50%***

*Estimated carbon reduction of **244,612,700 Kg Carbon** by 2030*

- Building Energy Audit

- Savings Target **5% - 15%**
- Data Centre Retrofitting – GDC
- Energy efficient bulbs

WATER

- Rainwater harvesting
- Installation of low flow head pipe

WASTE

- Promote reduction on waste program
- Promote recycle program

MOBILITY

- Pedestrian Walk
- Bicycle Rental
- Electric Vehicles
- EV Charging Station
- Road closing (6pm to 12pm) Persiaran Perbandaran

GREENERIES

- Tree Planting Programme
  "Shah Alam Trees for Life"
  84,686 Nos of Trees planted
- Greening The Cities
  - Along the roadsides
  - Monitor data
- Shah Alam Orchid Show

Other initiatives undertaken by MBSA

1. promote sustainable planning principles to various level include government organisations, non-governmental bodies, developers, students, and the general public(community)
2. promote the agenda of low carbon city in town planning and city management;
3. participation in various environmental programmes and projects organised by various agencies;
4. collaboration with government agencies and other NGOs in addressing issues related to environment, social and sustainable development;
5. Participate in research related to the sustainable development applied on technology and principle such as low carbon development, green development, environmental assessment, etc; and
6. Organise programmes and events related to sustainable development and integrating the principles and measures for sustainable planning and development

Example City – Shah Alam, Selangor, Malaysia

Element	Total Carbon Emissions		Reduction Achieved		Diamond Level
	2015 (B) tCO_2/yr	2018 (A) tCO_2/yr	(B-A) tCO_2/yr	%	
Energy	54,801.69	49,687.28	5,123.41	9.35	2 D
Water	165.19	148.16	17.03	10.31	3 D
Waste	2,023.78	1,535.08	488.70	24.15	3 D
Mobility	3,512.06	2,007.23	1,504.83	42.85	4 D
Total Emissions	**60,502.73**	**53,368.74**	**7,133.99**	**11.79%**	

Element	Total Carbon Sequestrations		Sequestration Increased		Diamond Level
	2015 (B) tCO_2/yr	2018 (A) tCO_2/yr	(A-B) tCO_2/yr	%	
Greenery & Water Bodies	6,462.40	6,462.40	0.00	0	
Total Sequestration		**6,462.40**			

This is to verify that

MAJLIS BANDARAYA SHAH ALAM

for the

PUSAT BANDAR SEKSYEN 14 SHAH ALAM

Low Carbon Zone

has successfully reduced its GHG emissions by **11.79%**

since 2015 across 4 elements which is equivalent to

7,133.99 tCO_2e

and has maintained its carbon sequestration potential

of **6,462.40 tCO_2/year**

ELEMENT	REDUCTION ACHIEVED	DIAMOND LEVEL
ENERGY	9.35%	
WATER	10.31%	
WASTE	24.15%	
MOBILITY	42.85%	

ELEMENT	SEQUESTRATION	DIAMOND LEVEL
GREENERY	Maintained	

Other comments

- There could be a presentation or an interview by the Volunteer Town with the Expert Reviewer as this can help clear up any missing information or misunderstanding between both parties.