

INCA Capacity Building Fund *Local Government Capacity Building Study Tour Report*

1st – 9th of May 2010



**Compiled by the South African Delegation of
Senior Municipal Officials and a Councilor**



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1. BACKGROUND ON TOUR TO FRANCE

The INCA Capacity Building Fund presented a Local Government Capacity Building Summer School in October 2009 to which 30 Local Government's political and official representatives were invited. The Summer school was co-sponsored by the First National Bank Corporate Banking Division, Infrastructure Finance Corporation (INCA), Agence Française de Développement (AFD) and the French Government.

During the Summer School critical and topical issues facing the Local Government sector in South Africa were presented by experts and subsequently discussed by the delegates, who were empowered to share ideas and exchange vital information on own municipal experiences. As an extension to the Summer School, the French Government, through the French Embassy in South Africa made it possible for a delegation nominated at the end of the Summer School to attend a Study Tour to France. This delegation consisted of seven members, comprising Municipal senior officials and a Councillor.

The Study Tour took place during the period 1 May 2010 to 9 May 2010. The INCA Capacity Building Fund coordinated the tour itinerary, with AFD and the French Government playing a significant role in arranging and finalising the tour itinerary.

The delegates had to compile a report, arising out of their daily visits to the various municipalities. The content of the report is outlined above but each report would contain at least the following information:

- a) Introduction and background
- b) Key lessons learnt
- c) Recommendations

The recommendations from all the reports will therefore form a summary of recommendations to the Government in South Africa.

2. OBJECTIVES OF THE TOUR

The main objective of the Study Tour was to expose South African Local Government practitioners to French best practices, with the 2010 focus being specifically on enhancing the knowledge base of participants in the following aspects:

2.1 Energy Efficiency in Municipalities. This was showcased through various visits and meetings around the theme and included interactions with all major role-players in France.

2.2 Waste (Sorting & Incineration), Sanitation/Sludge and Biogas Transport Project at Lille Metropolitan Council.

2.3 The role of the French Development Agency AFD/French companies/institutions in the provisions of energy efficiency solutions to South Africa.

Outcomes expected from the Study Tour were:

- To document useful insights, policy issues, systems and procedures and to make this available to role players who may benefit;
- To strengthen relations between South Africa and France with specific emphasis on possible twinning agreements;
- To give delegates a clear understanding and appreciation of the French culture;
- To establish a network of contact persons for future consultation and information sharing with regard to best practice models;
- To adapt the lessons learnt in France to the South African context in a further attempt to strengthen our system of Local Government.

3. ITENARY FROM 1 TO 9 MAY 2010

Date	Contents
1 May	Briefing session at Oliver Thambo International Airport, Johannesburg
2 May	Exploring Paris – Visit of the Basilica and Eiffel tower
3 May	<p>Lille Metropole</p> <ul style="list-style-type: none"> ➤ Presentation of Lille Metropole Francois Kowandy ➤ Lille Transport Policy - Transports and intermodality Gilles Schaffholtz ➤ Lille Waste Management Policy – Visit of CVO Pierre Hirtzberger ➤ Waste to Energy – Visit municipal bus fleet
4 May	<p>Ville de Paris</p> <ul style="list-style-type: none"> ➤ Environment Department – Climate Change Action Plan Yan Francois ➤ Building Department – Schools retrofit
5 May	<p>Grenoble Alpes Metropole</p> <ul style="list-style-type: none"> ➤ Grenoble Climate Plan ➤ Grenoble Transportation Strategy ➤ Energy Efficiency, Production and Architecture in Buildings – Visit Bonne District
6 May	<p>Climespace</p> <ul style="list-style-type: none"> ➤ District Cooling System –Climate change and energy Efficiency policies Kamel El Hammami and Benoit Senejean ➤ Ville des Mureaux - Architecture and energy efficiency in buildings
7 May	<p>Business Meeting – Energy efficiency, Energy production and Waste management</p> <ul style="list-style-type: none"> ➤ Presentation by South African Delegation ➤ Presentation by Ubi France and Ademe Dr Didier Bosseboeuf ➤ Meeting with Agence Francaise de Developpement
8 May	<p>Paris</p> <ul style="list-style-type: none"> ➤ Consolidation of report ➤ Depart for South Africa – Charles de Gaulle airport

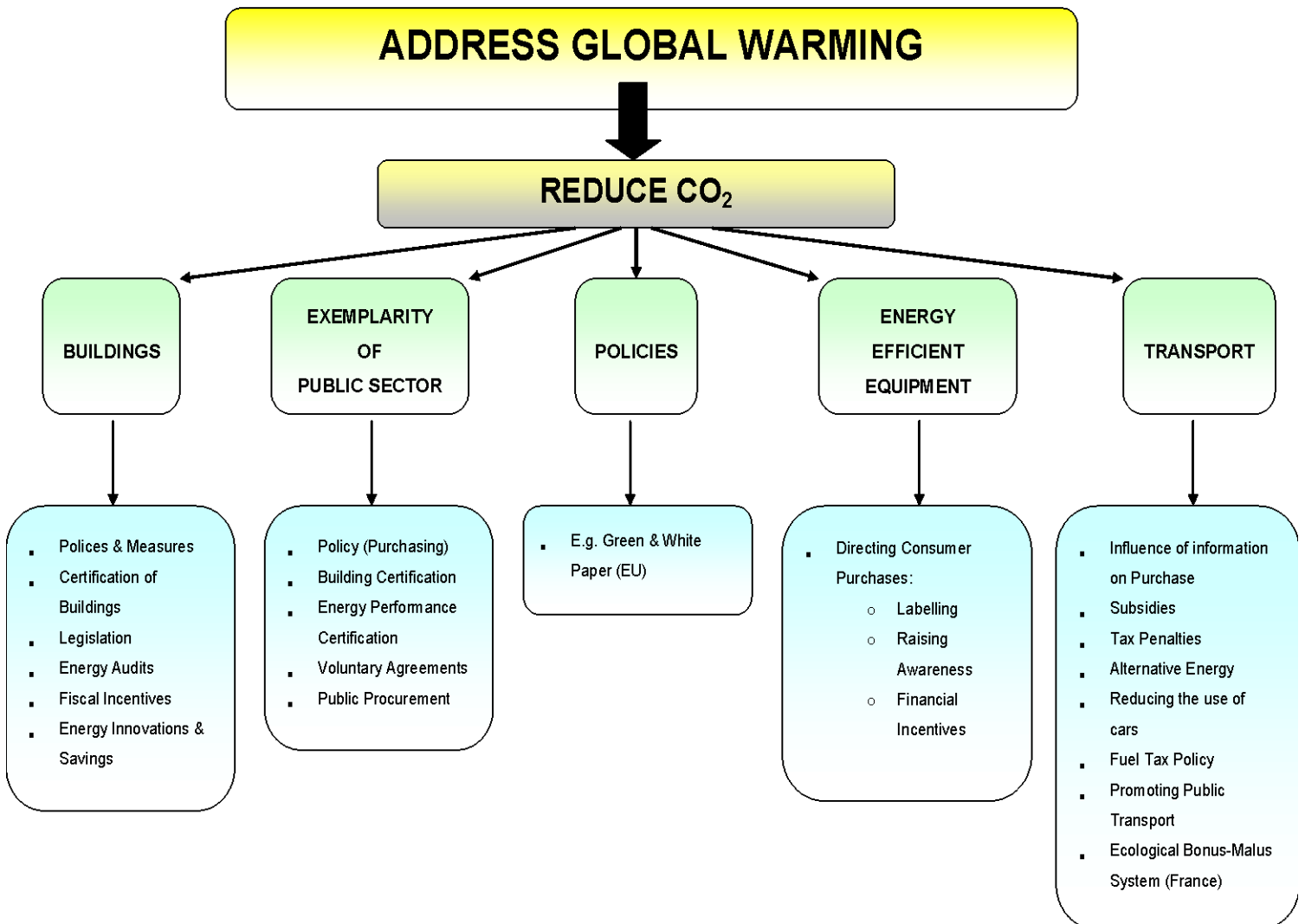
4. PROFILE OF DELEGATES

Delegate	Organisation	Position
Bharthie Ranchoddas	eThewkini Metro Municipality	Corporate Executive – Departmental Accounting
Henry Prins	West Coast District Municipality	Municipal Manager
Khomotso Maponya	City of Johannesburg Metro Municipality	Treasurer
Lerato Thwane	Hibiscus Coast Local Municipality	Chief Financial Officer
Linkie Mohlala	Emakhazeni Local Municipality	Mayor
Louise Muller	City of Cape Town Metro Municipality	Director Shareholding Management Finance
Stephen Jacobs	Theewaterskloof Local Municipality	Chief Financial Officer
Noel Jelliman	INCA Capacity Building Fund	Delegation Leader
Nicolette Botha	INCA	Portfolio Manager

5. FRANCE STUDY TOUR REPORT

Overview of France's Policies and Good Practices. (Energy Efficiency in the European Union)

ENERGY EFFICIENCY IN THE EUROPEAN UNION (EU)
Overview of Policies & Good Practices



1. Executive Summary

The world is facing increasing energy prospects and stakes, in terms of energy supply security and safety, environmental impact as well as economic and social cost. In Europe, these fast growing concerns have led to the adoption of new energy efficiency policies at national and European levels: legislation, regulations, institutional measures, awareness raising and training campaigns, financial incentives, investment schemes etc. These policies lead to the fulfillment of European commitments on energy efficiency and greenhouse gas emissions reduction.

The report leads the discussion on the following issues which are prevalent in terms of energy efficiency; key figures of European energy efficiency and the policies carried out at the EU level, Buildings, Energy Efficient Equipment, Exemplarity of the Public Sector and Transportation.

2. Key Figures of Energy Efficiency in Europe

The primary energy consuming sectors in Europe are Transport, Industry and Residential. The Building sector, including Residential and Tertiary buildings, makes up 35% of total final energy consumption.

An analysis of energy consumption by product revealed that Oil products are largely dominant approximating 44% of energy supply, followed by Gas - 21%, Electricity - 19%, Coal - 5%, Biomass (plant matter grown to generate electricity or produce heat) - 5% and Heat - 6%. Grouping all renewable sources (heat and biomass); their share in final energy consumption is approximately 9%. These figures and trends reveal a strong correlation between the transport sector and the consumption of oil products, and between the building sector and the consumption of electricity.

European Energy Efficiency Policies

Energy efficiency is nowadays one of the priorities of the EU. The EU implemented strategic guidelines (Green Papers) followed by shared action plans (White Papers). An analysis of the numerous documents written over the past ten years on the EU's energy efficiency policy shows a strong coherence between these writings and two broad policy objectives: the fight against climate change and the creation of a common European energy policy. Some examples of these Papers are:

- The Green Paper on Energy Efficiency or “doing more with less” which was drafted over 2005-2006
Energy saving potential by 2050, as defined in the Green Paper for energy efficiency

Preparation of an Energy Efficiency Action Plan for the period 2007-2013. It proposes an objective of **20% of energy saving by 2020**, and highlights the positive impact of energy efficiency for Europe in two ways: gaining competitiveness for the European industry and job creation while still respecting the Kyoto commitments.

Energy Policy for Europe (2007)

The policy adopts the **20% energy saving target by 2020** in reference to the scenario of “business as usual” and its impact on greenhouse gas emissions. This policy also provides guidelines related to the European internal energy market, supply security, development of energy technologies, nuclear energy and public awareness.

Energy and Climate Change Package (2008)

This program reiterates the **20% target of greenhouse gas emissions reduction and 20% use of renewable energy** in total final energy consumption. Energy efficiency is seen as a means to reach these targets.

Energy saving potential by 2005, as defined in the Green Paper for energy efficiency

Energy Consumers	“2020” Potential achievements if measures are implemented rigorously	“2020+” Potential achievements if additional measures are implemented
Buildings	56	105
Heating/Cooling	(41)	(70)
Electrical Appliances	(15)	(35)
Industry	16	30
Transport	45	90
Cogeneration	40	60
Other energy transformation, etc.	33	75
Total energy saving	190	360

3. Buildings: First target of the EU’s Policy for Energy Efficiency

In 2007, the Building sector was the major energy consumer using 35% of the total final energy consumption in the EU. A common methodology was adopted to commute the energy performance of buildings through setting minimum standards of energy performance in new and existing buildings, certification schemes for new and existing buildings and regular monitoring of heating and cooling systems.

Policies and measures implemented in this sector cover all uses targeted by the directives (new and existing buildings, heating systems, household electrical appliances). Some countries favour one type of measure such as regulatory tools, as in Greece, or financial aid to investment, as in Spain, while others offer a wide variety of measures, as in Sweden. Nowadays **40%** of the measures in place in this sector are **regulatory of nature**.

Compliance with regulatory standards is also promoted by certification of new buildings which is now mandatory in nearly all countries in the EU. The certificate is delivered following an energy audit, generally when selling or renting a building.

Some countries like **Greece and Portugal** developed **specific legislation** to optimize heating systems, including the installation of **solar thermal systems**. Improving heating systems also calls for better control of the equipment and regular monitoring of energy bills in order to identify possible leaks of energy use.

Energy audits are a useful tool to inform the consumer of possible actions to improve energy efficiency of their housing. These audits are usually free for households and they are partially funded by public agencies or by energy suppliers.

Fiscal incentives, often in the form of energy tax exemptions or income tax reduction are favoured in countries such as Belgium and Holland. The **UK offers households reduced VAT for the purchase and installation of energy efficient equipment** (solar panels, heating systems controlling devices, etc.) **Bulgaria offers property tax exemption** for the purchase of energy efficient equipment.

4. Energy Efficient Equipment in Buildings

Households are encouraged by information campaigns, adequate labelling and sometimes financial support to purchase energy efficient products. These actions target the developers, manufacturers, distributor's vendors, etc. They intend to reduce cost and increase the market.

The UK's goal by 2011 is to go beyond the European Directives by imposing minimum standards of energy efficiency on more than 21 products, particularly in the lighting industry. To do so, the Government works in partnership with manufacturers and distributors of household light bulbs. Sweden is currently developing a specific program for the commercial sector: the BELOK program consist in coordinating real estate agents to acquire energy efficient systems and equipment for commercial buildings (the BEBO program, on the other hand, targets residential buildings).

Consumer purchases should be directed more towards energy efficient goods. There are three ways to influence consumers choices to direct them towards more energy efficient goods namely; labeling, raising awareness and financial incentives. Besides energy efficient standards, labeling programs incite manufacturers to introduce more energy efficient models as a way to gain a competitive advantage. The real issue at stake in terms of energy efficient goods is to incite a reasonable consumption level: this implies a complete change of social behaviour.

5. The Exemplary Role of the Public Sector

The **public sector** is in a particular position with regards to energy efficiency. Public organisations are large consumers and are responsible for **preserving the general / public interest**. They must set the **example in energy efficiency policies**, and particularly within their direct operational areas (buildings, lighting and vehicles). The private sector should then logically follow up using best practices implemented by the public sector.

The **UK and Holland** have targeted the “**carbon neutrality**” of central government buildings by 2012. In Germany, the aim is to reduce CO2 emissions by 30% between 1990 and 2012.

In order to achieve these objectives, local authorities define and implement, either voluntarily or following national regulations, local action plans for energy efficiency. An energy manager is appointed in the public sector of certain countries to guarantee that the action plan will be effectively carried out and monitored.

The energy performance of new and existing public buildings is guaranteed mainly through building certification and a stricter regulation than in other sectors. Energy performance certification has been mandatory in Greece since 2004 to encourage the upgrading of their buildings; public organisations are generally offered access to investment or decision making support programmes.

A **sustainable purchasing policy** has been adopted by many European countries. Cyprus has developed an action plan **for green public purchasing including energy efficiency** criteria for equipment as well as for buildings. The Netherlands aims to integrate sustainable purchasing criteria in all public procurement.

6. Transport

In Europe, **transport** is the sector in which the **most energy is consumed**. The sector's strong reliance on oil products makes it the second highest contributor to global warming just after the energy production sector.

Information plays a major role in consumer behaviour and influences final purchase decisions towards vehicles which consume and pollute less.

Through the introduction of subsidies member states aim to **replace existing vehicles with energy efficient models**. These incentives are often coupled with tax penalties on high energy consuming vehicles and aids for efficient vehicles. The introduction on of tax policies on purchases steers consumers towards buying more efficient products.

Several measures also aim to encourage alternative energy, e.g. Cyprus offer subsidies to all purchases of hybrid or electric vehicles. The use of bio-fuels in transport is encouraged by a large number of European countries. This support is also a part of the EU's goal of 10% for bio-fuel use in final transport energy consumption in 2020, even though the target is currently under debate.

The Ecological Bonus-Malus System (France) for automobiles is one of the first measures adopted at a conference organised by the French Government with business, unions, local communities and associations. This applies to the purchase of a new vehicle with a financial incentive, calculated in relation to expected CO₂ emissions. The Bonus Malus System relies on the energy- CO₂ label made mandatory for new vehicles in 2006. Eco-responsible motorists can thus benefit from a bonus of at least 200€ for any vehicle emitting less than 130g of CO₂ /km, the bonus can even reach 5000€ for an emission level less than 60g of CO₂ /km (essentially electrical vehicles). On the other hand, purchasing a model emitting more than 160g of CO₂/km is penalised by a minimum malus (clawback due to performance) of 200€, but which cannot exceed 2600€.

Another initiative is to **reduce the use of the car**. A fuel **tax policy** aims to discourage the continual use of individual vehicles and encourages eco-efficient behaviour. The introduction of toll gates can reduce road vehicle use and make other forms of transport seem more attractive. Certain countries such as the UK have also created urban toll gates. Doubled with a parking and public transport program in town suburbs, they encourage a greater use of energy efficient transport and reduce circulation in town centres.

Promoting public transport aims to make public transport more attractive and competitive for users (notably in service quality) in relation to driving a car. The actions undertaken can take

various forms: introducing of urban mobility plans, restricting access to town centres to facilitate and promote the use of eco-friendly forms of transportation. This improvements also requires better information to users and greater complementary between modes of transport.

5.1 Exploring Paris, Sunday 2 May 2010

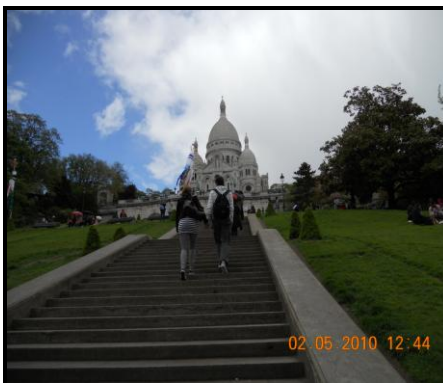
a. Introduction and Background

The team arrived at Charles de Gaulle Airport after a very smooth flight. After standing in a long queue at the passport control point, the team entered France without any hassles and went out to the waiting transport to the hotel. The team agreed to meet at the hotel foyer at 10h50 after freshening up, to leave at 11h00 for a visit of the historical features in Paris.

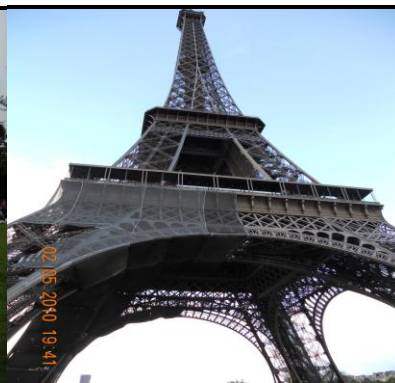
Travel by train

At the underground metro rail terminal, we had to use the ticket machine to buy tickets. Calculations were done and five transactions of 23.20€ were processed, purchasing 20 tickets per transaction to be shared between paired team members. The delegation was in a rush as we wanted to visit a number of these features before our visit to the Eiffel Tower scheduled for 20h00. It was up and down the stairs in the subways, some members' tickets not allowing them access through the access gates. What was interesting was that team cohesion was facilitated and the members shared their tickets to ensure that those with access difficulties were not left behind but assisted through. The stations were full of commuters but they all gained access to the train with ease. More interestingly, there are electronic boards that show the intervals at which time the trains will reach the station and the time was adhered to.

Most popular tourist sites visited by the delegation were:



Basilica of the Sacré-Coeur



The Eiffel Tower built in 1889



The Arc de Triomphe is the world's second largest triumphal arch, and was commissioned by Napoleon to commemorate his important victory at Austerlitz

Shopping in Paris

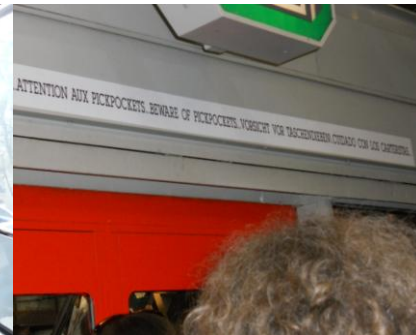
Before the visit to these memorial features, the team had an opportunity to visit a number of clothing stores in the Champs Elysees Street. The beauty and quality was confusing!



Dinner at Bistro



*Funicular (Sky car)
- ride at €1.30*



*Beware of pickpockets
display on way up to Eiffel Tower*

After leading us patiently from feature to feature, shop to shop, it was well understood why our Coordinator, Noël, looked so exhausted. How do you really lead a team with such energetic members, who hopped from shop to shop looking for what could be bought? It was as if the shops were really calling some of us by our names! During the day we were greeted with occasional rainfall, but we braved the weather. It was really fun!

Talking about the weather, Paris on this day experienced all four seasons. It was sunny at first, then the drizzle, then the wind and the cold, as if that was not enough, the rain poured!

It was only when we left the Eiffel Tower that we realized that it was late at night. Time stood still in its true sense. Our feet could no longer carry us whilst on the other hand the train back to the hotel was calling us.

What an experience!

b. Key Lessons learnt

- The efficient and integrated public transport system made it possible for us to move from one venue to another without any significant problems and delays. The following features enhanced efficiency:
 - The information displays
 - The ticketing system
 - Safety
 - Reliability
 - Frequency

In addition to the integrated transport system which works efficiently in Paris ,many Parisians are encouraged to walk and use of bicycles to connect between stations.

- The manner in which Parisians have preserved their cultural identity and history through the various national monuments in the city, the art that surrounds you everywhere you go. This historical posterity, combined with the fine food/dining industry and retail play an important role in identifying Paris as a world tourist destination.

c. Recommendations

- South African's should be encouraged to walk small distances instead of using vehicles. This would assist in reducing the carbon emissions and encourage healthy living.
- South Africa's historical and places of heritage require more marketing, to both its own people and international tourist. Like the French we need to pride ourselves in our rich and diversified history.
- That effective measure's of dealing with crime related to tourism be implemented to make it easy for the visitors to access historical features.
- Visible policing and army patrol's is a necessary evil to combat crime, theft and damage to the country's resources.

5.2 Lille Metropole, Monday 3 May 2010

5.2.1 PRESENTATION ON LILLE METROPOLE

By Francois Kowandy

a. Introduction and Background

Mr Kowandy warmly welcomed all the delegates to the Lille Metropole presenting us with the background, composition and functioning of the municipality.

Lille Metropole is a public authority that was established in 1966, and currently led by Martine Aubry, the President elected in May 2008. She is a Mayor of the municipality and a leader of the Socialist Party which is the opposition party at Central Government level. The Council comprises 170 members elected to serve a term of 6 years. The mayors of the bigger municipalities hold strategic positions in the Metropole.

Lille has a population of 1.2 million and covers 600km². It is the fourth largest municipality after Paris, Lyon and Marseille. It comprises 85 municipalities of which 50 are rural which give the metropolitan area a competitive advantage in the food processing due to agriculture.

Lille employs 2500 administrative and technical civil servants. They have a budget of €1.7billion and it was interesting to hear that most of their operations are outsourced to the private sector. They use the system of public private partnerships where the municipality develop and own the capital layout / infrastructure and the private company acts as a managing agent. They stress that this is in order to retain control in the municipality and the municipality's interest and this is also evident in the manner in which they set up their contracts. They have regular meetings to ensure the agreed service levels are maintained and the municipality is always in a position to intervene in order not to compromise the quality of the service to their citizens.

Their revenue is mainly derived from business taxes which are collected by Central government and redistributed to the municipalities. However there is a motion to change this method as the municipalities feel that it compromises the attractiveness of their territory to outside investors, which has resulted in an investigation into the alternative sources of revenue in order to replace the revenue from the business tax.

The key functions of the municipality which are regarded as **high priority** in comparison to their budgets and relative to the other functions are:

- Road system and public spaces
- Water and sewerage
- Collective transport and parking
- Household waste

The following are the **new scope** of activities which are receiving some attention:

- Sports and culture
- Environment (Agenda 21 Climate plan)
- Economic development

Other scope of activities incorporating **cross border** countries includes:

- International co-operation
- Cross border co-operation
- European Affairs
- Co-operation with non European countries



Lille Métropole Urban Area



Lille Metrpole covered area

b. Key Lessons learnt

- The establishment and management of public private partnerships, whereby the infrastructure is developed and fully owned by the municipality from the beginning which puts them in a position of control in the partnership. They also work with Non-Governmental Organizations in these contracts. The private sector is only involved with the operation and management activities and the service level contracts are water tight in favor of the municipality.

- Their emphasis on communicating with the vested role players especially the residents and the level of investment in educating the community on municipal issues to ensure efficiency.
- Partnering and lobbying with key Europeans Union institutions, thereby allowing them develop and **implement strategic international projects** and redefining there international strategy.

c. Comparison with South Africa

The governing structure is similar to the South Africa with the distinction that the big metropolitan areas are subdivided into smaller municipalities; making a Metropole more like the South African District Municipalities

The revenue is collected by Central Government and in Lille the local tax is raised on businesses and not households. In South Africa, municipalities are responsible for raising and collecting their own revenue through property rates tax from both households and business and the Government though National Treasury provides Infrastructure Grants and equitable shares to fund the indigent and specific developments.

d. Recommendation:

- The implementation of local business tax as another form of income for local government in South Africa be thoroughly investigated with the French who has removed this tax as it was found to be unsustainable.
- Outline cross border strategy with our African counterparts.
- Develop and implement projects across our borders.
- Create awareness campaigns on projects which has an impact on the environment.

5.2.2 PRESENTATION ON TRANSPORT AND INTERMODALITY

By Gilles Schaffholtz

a. Introduction and Background

Gilles Schaffholtz is the director responsible for the transportation department at the Lille Metropole. This Metropole places its key emphasis on the transportation function. The department employs in excess of 2500 administrative and technical civil servants. The transportation function is run by a private company through a Public Private Partnership. The initial contract is concluded for a 7 year period, subject to renewal at the end of the term. However, the contract provides for a sunset clause for early termination in an event of under-performance. It was interesting to learn that the municipality guarantees the private party the minimum revenue required to cover operating costs if they perform according to the contract.

In terms of the Clean Air Act of 1996 all cities with a population more than 100 000 in France are required to develop a plan of urban transport which organizes all transportation, traffic and parking. The primary objective is to reduce the carbon emissions by developing alternative modes of public transportation.

The **Lille Metropole** has the following **modes of transport**:

- The metro system (subway), which has been in operation since 1983, caters for 61% of daily travels by public transport. It has 2 lines covering 45km of track and has 60 stations.
- The tramway which has been in operation since 1909 and renovated in 1994; it covers 22km of track and makes 36 stops.
- The Liane which uses the strength of both a tram and bus system by offering high flexibility (bus) and high performance and speed (tram). It gets priority at traffic lights and is allocated priority "Liane" lanes. The Liane network covers 505km with 44 dedicated lanes. In 2009 there were close to 6 million travels recorded by the Liane.
- There is also a suburban bus system with 45 lines, 654km of network and catered for close to 6million travels in 2009. The interesting feature here is that of the 386 busses, 320 are running on natural gas.

Benefits of Public Transportation in Lille Metropole'

The Transportation network is considered most important and is well developed, providing the following benefits:

- **Accessibility for all including the disabled** – equal height between floor level and platform, elevators and escalators in stations, currently 80% of the transport is compliant and the target is 100% by 2015.
- **Competitive pricing** with concession packages for youth and seniors, benefits for full-fare customers and creation of new offers for families and for short trips.
- Communicating information of travelling schedule every 30 seconds.
- Security – 4000 cameras have been installed inside the metro and inside the buses. There are 700 security officers employed. Emphasis is placed on security as being an open and integrated transport system, it is vulnerable and a small disruption has major consequences for traffic because the whole system runs according to schedule.
- Integration of transport by combining modes of travel – This integration aims to allow exchange between the different modes, reduce car use and the pollution it generates.
- Dedicated parking areas – there are 9 secured parking areas with a capacity of 4000 vehicle, this system is such that it is favorable to people who live far to park their cars and use the public transport within the city. They are provided with security at the parking lot, they have also introduced car sharing services and vehicle maintenance services at the parking areas.
- Velopole – on presentation of transport ticket, travelers can deposit their bikes without charge encouraging them to combine biking with transport. Currently there are 6 velopoles.
- Seven interchange stations are currently under study or in construction; these include a regional train interchange station with 450 parking and 38 bike stations.
- Ticketing System – The Metropole is currently undertaking a study to implement devices using computing and electronics for the management of transport system. The system allows the user to travel throughout the regional transport network on different modes with a single ticket.



Modes of Transport and Ticketing systems at stations

b. Key Lessons learnt

- The integrated transport system works efficiently and effectively. The ticketing system takes into account an individual's conditions e.g student, indigent, pensioner's and families pay different rates.
- The focus on security of the networks.
- Provision of free and supervised parking areas in close proximity to the metro stations.
- Special lanes for different modes of transport.

c. Recommendations

- That the National Department of Transport concludes its research into various options of ticketing systems available in France, India, Europe and other countries to indentify a system that would work best for South African citizens.
- The options of various pricing strategies need to be researched in order to make it economically and financially viable for all groups of users.
- That bicycles as an alternative and cheaper means of transport be explored. This requires local authorities to ensure special lanes are created for cyclist with special, lockable parking facilities and security.
- The park and ride system, where you are incentivised to park your car and make use of public transport through paying for parking and receiving free public transport tickets, should be widely implemented to assist with congestion. This system is heavily subsidised by the French Government in an effort to reduce the carbon footprint. In South Africa, both Local and Provincial Governments need to research the ways of reducing carbon footprint into the cities.

- The tram system within cities and suburbs needs to be explored as part of the integrated mode of transport by South African cities, however the integrated transport system has to be researched to identify the most viable means of transport for South African citizens' travelling on a daily basis. This requires huge capital outlay and re-zoning and, re-planning of our cities infrastructure and focusing on saving energy.
- Local and Provincial Government need to explore raising an additional transportation tax which is ring fenced and utilized for the development of transport infrastructure and different modes of transport within the different suburbs and cities e. g. tram.
- The development of the bus depots with the introduction of the Integrated Rapid Transit (IRT) system can assist with the promotion of ecologically and environmentally friendly targets.
- The use of natural gas should be explored by the National Dept of Transport as this could serve as a back-up system for fuel in case of short supply and prove to be energy efficient .

5.2.3 PRESENTATION ON LILLE WASTE MANAGEMENT POLICY

VISIT OF CVO - Centre de Valorisation Organique – Bio-digester – Gas from Organic Waste

By Pierre Hirtzberger

a. Introduction and Background

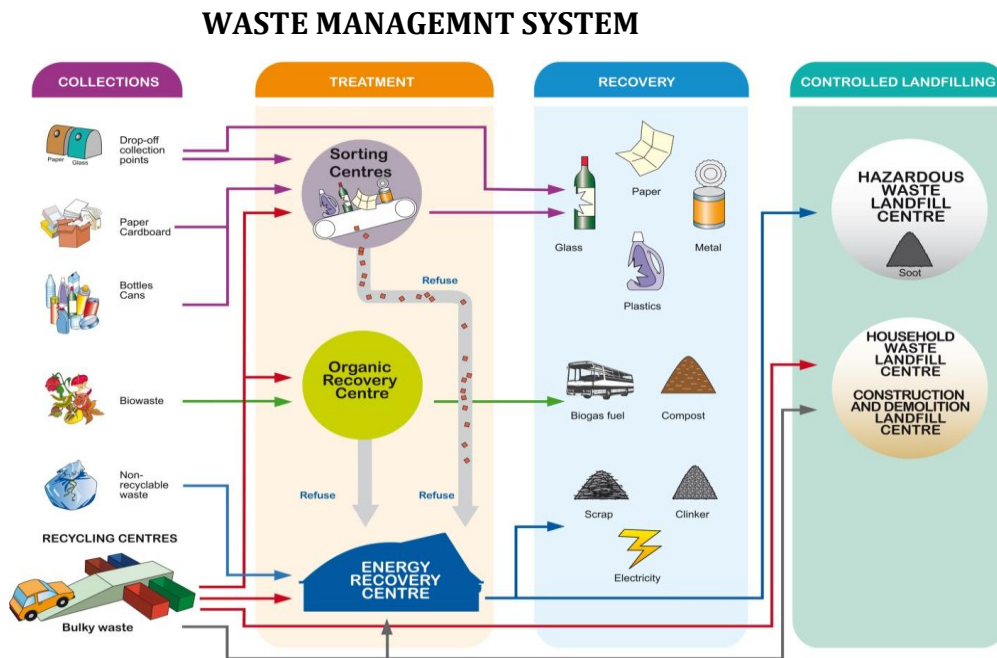
The waste plant at Lille is primary for the re-cycling of household waste from residents, shops, business and local food outlets, including garden waste, leftover food, etc.

In 1992 France introduced the green point system on packaging which places responsibility on the packaging manufacturers to label all packaging. In 1998 a law was passed to ensure 50% waste recovery. There is a tax of 12 Euros per ton for the incineration of waste, and 17 Euros per ton for landfill waste. The funds from this are used to promote recycling. The packaging producers pay into a national fund, which is refunded to municipalities, a fund which is supposed to cover the cost of recycling. It contributes to about 30% of the cost of recycling.

Households pay for waste treatment based on the rental value of the apartment. The French Government wants to introduce a “pay as you throw” system, but while this is easily introduced in single unit houses, it is not so easy for apartment blocks.

In 1998, 100% of waste went to land fill sites or for incineration. The population would not allow further landfill sites or incinerators and new processes had to be introduced. Following the National debate on environmental issues, the following strategic focus areas were identified:

- Optimise re-use of matter – recycling and organic recovery
- Energy recovery from waste
- Environmentally friendly disposal of residue waste
- Proximity: transport least waste over the shortest distance
- Territoriality: Dispose of waste locally



Their slogan is: Throw away less, sort more, treat better.

The lesson they have learnt is: Master the last destination of waste and allow other processes to be outsourced.

Sorting of Waste

Two systems are in place for sorting of waste. The *wheelie* bins are divided into two compartments, and each household in the urban area is provided with two (2) bins. The four compartments are for the following:

- Paper and Cardboard, or “clean and fibrous waste”
- Glass, plastic, metal and terra packs or “dry bottles”
- Bio-waste
- Any other waste.

Where there is space for limited sorting or in the more rural areas, there is only a single bin system, again compartmentalized to enable sorting into:

- Recyclable: clean and dry waste – including glass - collected one a week
- Residual waste- collected twice a week



Collection type- Recyclable and Residual



Sub contracting waste collection to private sector

Bins are owned by the municipality and are dedicated to an address, not to an owner. The municipality is responsible for replacement (after about 10 years of use) and for its general maintenance. Garbage compactor trucks have two separate compartments to take in the waste. The municipality sets the dates (roster) for the collection of waste and stipulates which bin must be set out.

There are **drop-off points for excess refuse** or for other items, **such as oil, small electrical appliances, plasma screens, furniture, etc.** There used to be a system whereby once a month the household could dump bulky household waste on the pavement and it would be collected. This caused an urban cleanliness problem and it has been replaced by a collection system whereby the householder can call for the large items to be collected.

Key statistics on waste

- 700 000 tons of waste is collected per annum
- 110 220 tons collected annually for recycling
- There are 2 sites for dumping, both with a capacity of 60 000 tons per annum.
- **Organic recovery** is at a rate of **100 000 tons per annum of bio-waste, kitchen and garden refuse. Treatment is over 25 days at a temperature of 57°C.** The resultant sludge is combined with woodchips and made into compost over a further 3 weeks. 22 tunnels are used at this time creating 34 000 tons of compost per year, mostly sold to the farmers at 5 Euros per ton! It is either collected by the farmers or delivered through the canal system.
- The energy recovery from the bio-digester is in the region of 350 000 tones per annum generating 172 GWh per annum. The operator is 70% owned by the municipality and 30% by the private sector. It is a social company that provides educational development to employees. Employment is mostly for the illiterate or low literacy group. This is in line with the ABET system introduced in South Africa. The sorters, once educated, leave the system and move into more formal employment – the turnover ratio is expected to be high.
- Clinker recovery, 300kg from every ton burnt in the incineration process, is used in road works – approximately 100 000 tons per annum.
- The drop off facility receives approximately 120 665 tons per annum from about 823 600 visits. 73% of this is recycled. The treatment facility is monitored by a Local Information and Inspection Commission, made up of various interested stakeholders and the community representatives. The process starts with a public consultation process and consultation with the community leaders.



Plant for recycling household waste



Team visit to the Plant



Export of waste to Belgium

b. Key Lessons Learnt

- That Parisians and local authorities are aware of their responsibilities in the field of participation in sustainable development. As such many public consultation and community participation forums are organised to create awareness and debate issues on recycling and green environments.
- The packaging industry plays an essential role in the recycling process and can influence the amount of waste that needs recycling.
- Every process will produce some output – but there are often ways of using this output such as the clinker from the incineration being used for road works and the gas and compost as bi-products of waste management.
- The benefit of various processes of recycling cannot be measured only in economic returns, as these are often minimal. The greater good of reducing landfill must be considered.
- The bio-gas process has to be carefully managed and monitored as it takes up to 6 months to start the process from scratch.
- Separation of waste at source ensures cost effectiveness and maximization of the benefits of waste management. It is noted that in the re-cycling process minimal labour is required.
- The use of alternate mode, i.e. the river, for transportation of waste to the various treatment plants which could result in a reduction of carbon emission in the city must be investigated.

c . Recommendations

- Landfill sites are expensive to maintain and therefore in South Africa all Local Authorities should work together to come up with a policy on waste disposal and recycling.
- Research into the financial viability of providing separate bins with separate compartments and disposal trucks would assist in determining how we manage disposal of waste.
- Where it is not possible to have the two bins, 4 compartment system, it may be useful to introduce a system using different coloured bags for refuse separation.
- For waste disposal to be managed effectively, local authorities need to ensure that its communities are educated on harmful and benefits of effectively disposing of waste. The field of waste disposal in South Africa provides ample job opportunities to South Africans to be trained, skilled, educated and empowered in the communities.

- The collection of the various types of refuse must be aligned to the most effective routes of collection, separation, treatment and disposal.
- Transportation of refuse is an expensive process and therefore the minimization of waste is essential at source. Changing the mindset of the population to sort and drop-off waste at convenient points can assist greatly in reducing costs.
- Small business must be encouraged to collect recyclable items in order to move items from source to the recycling depot/processor – possibly creating a new business and employment opportunity.
- In South Africa we need to create public awareness on the green environment and management and disposal of waste.

5.2.4 FROM WASTE TO ENERGY: VISIT OF THE MUNICIPAL BUS DEPOT:

a. Introduction and Background

The Depot was opened in Sequelin in Lille on 19 December 2005. It is for the maintenance, fleet management and refueling of buses. It is also used by some other non-municipal transportation systems. It covers 54 000 m². The buses operate from 4 am to 10 pm. The building is built in an environmentally friendly manner and to ecological standards using solar energy to provide for 50% of energy requirements and a photovoltaic system for the walkie-talkie communication system. The roof is 2 700 m² and rainwater is collected from it. This ensures that of the 400 litres needed to wash the buses; only 30 litres come from potable water sources. The maintenance area is naturally lit with skylights and naturally aerated. The bus depot is ISO 14001 accredited.

They currently have 100 standard buses and 50 articulated buses using natural gas. These buses use 15 000m³ of methane gas, the same amount of gas as 19 350 households per day. Once the necessary authorities have been obtained, the bus depot will be supplied with bio-gas from the bio-digester in order to supplement the normal gas supplied. This is expected to have a significant impact on the operating costs.

b. Lessons Learnt

- The refueling of buses with gas takes time, at least 10 minutes per bus – if the gas is at the correct pressure. When all buses are connected to the system , there is a loss of productivity i.e. downtime o at least 5 hours .
- It is essential that, as far as possible, all approvals are in place before the various processes are started to avoid some unexpected consequences (such as the storage of the bio-gas due to lack of approval by national level for the introduction of the bio-gas into the natural gas line.)
- It was good to see the promotion of green energy advertised on the buses that run on natural gas.
- The collection/harvesting of rainwater can significantly reduce operating costs of the bus depot if used for cleaning purposes.



Delegates exposed to the Municipal depot where buses operate on natural gas

c. Recommendations:

- The development of the bus depots with the introduction of the IRT can assist with the promotion of ecologically and environmentally friendly targets, towards the realization of the Agenda 21 targets on Climate Change.
- The use of natural resources, such as rainwater, for washing cars and watering the gardens should be thoroughly investigated to manage costs and reduce reliance on potable water.
- Back-up systems for fuel supply are essential to assist with any technical problems/ in case of any malfunction.
- Research into the use of methane gas is suggested as an alternative source of fuel that can be used in buses, which reduces greenhouse gas emissions and reduces the engine noise by at least 50 %.

5.3 Ville de Paris, Tuesday 4 May 2010

5.3.1 PRESENTATION ON CLIMATE CHANGE ACTION PLAN

Ville de Paris, Presentation of the “Plan Climat” By Yan Francois



a. Introduction and Background

There are 12 million people in France of which 2 million live in Paris, amounting to 21 097 inhabitants/km² in the 105 km² within the boundaries of Paris municipality. Some interesting statistics on the City of Paris:

6 000 streets in Paris	Equaling 1 700 km of roadway, on which there are 2,7 million movements by car a day
360 metro stations and 60 bus lines in Paris	On which there are 3 billion trips taken per year, supplemented further by 15 000 cabs as well as 2 000 tourist coaches per day
26 000 000 tourists	Assisting in <ul style="list-style-type: none"> • producing 1 200 000 tons of waste per year; • using 550 000 m³/day and • 34 000 GWh/year of energy.
1 700 000 jobs in Paris	Provided by 300 000 enterprises, however, there is currently an 8,8% unemployment rate
1 322 000 dwellings in Paris	There are 200 000 council houses for the citizens

Some statistics regarding the **administration** of Paris:

The administration consists of 3 000 buildings	<ul style="list-style-type: none"> • Heating these buildings utilises 500 GWh/y and • 200 GWh of electricity are utilised per annum
There are 3 700 official vehicles	Utilizing 8 million litres of fuel per annum
The City is run by 48 000 civil servants	The annual budget is 7 billion € per annum

A huge amount of goods, approximately 30 million tons, are moved within and around Paris with the transport amounting to 1 750 000 tons of carbon dioxide emissions (2004 figures). 40 million visitors per annum (tourists and day visitors) contribute to the waste, with tourists contributing most. The electricity comes mainly from hydro and nuclear power plants, being clean energy there are no carbon emissions.

A public debate on climate protection was started in June 2006, resulting in the Climate Protection Plan being developed in October 2007. This was adopted unanimously on 1 October 2007. A group of 300 people spent about 100 hours preparing the first White Paper.

The **objective of the Climate Protection Action Plan of Paris is to achieve a 75%** reduction in Green House Gas (GHG) emissions by 2050, using 2004 as the base year. The local administration has set interim targets to achieve this long term target. The KPI's set for the 2020 interim periods are:

- **30% Reduction In Emissions**
- **30% Reduction in energy consumption (Buildings & Street lights)**
- **30% of energy supply to be from renewable sources**

The City has set **stringent and ambitious goals** for **electricity usage for heating** in buildings:

- New buildings: 50 kWh/m² per annum (being a 75% reduction in heating costs) against the National level of 120 kWh/m² per annum. New building plans could not be stopped from being passed if they did not comply, but an energy efficiency certificate could be provided to those that were energy efficient. However, this did not ensure that there would be efficient usage.

- 80 kWh/m² per annum for renovated buildings and 5 000 dwellings retrofitted. Before the retrofit, most buildings used about 280 kWh/m² per annum for heating the buildings. However there is no law that obliges building owners to be energy efficient and it is a significant challenge to encourage private owners to reduce the kWh/m².

The City has set further targets to reduce GHG emissions from local transport by 60%; create a new zero carbon urbanisation area and **reduce waste by 15% by 2020**.

Steps taken by the Paris Administration to achieve these targets:

- Paris administration has adopted the slogan of “DO YOU REALLY NEED WHAT YOU WANT TO BUY”.
- The administration has proposed a reduction of 66% of paper consumption by 2015 on the base year of 2004.
- Individual printers were removed, resulting in an immediate 20% reduction in the printing of documents/usage of paper.
- A specific line item for paper in the budget which cannot be exceeded to or overspent.
- Laptops have been introduced for Council meetings with electronic documents and no print functions.

Changes in the above were achieved through change management and communication with staff over a period of at least a year.

City Planning for Climate Change

Paris is too far north to really benefit from solar heating. Electricity is relatively cheap in France compared to the rest of Europe as the price is centrally controlled – there is a single price for the whole of France. Solar and wind are not really advantageous in France due to the relatively low electricity price and so there is not much private investment in this area. However wind farms are being encouraged – in one place three turbines produced all the power needs of one building. However, there is a strong push not to change the aesthetics of the buildings and affect the historical appeal. There are the solar and wind farms which are also in a test phase to see if power

can be produced on a mass scale using the alternative energy systems. There is also a plan to start a wood powered plant for heating. Waste incineration is used to create steam which is piped to buildings to assist with heating. This is transported through over 440 km of pipes. Use is also made of **geothermals to heat water stored in tanks** in order to **create steam** which is used to assist with heating.

During the heat wave of 2003, 5 700 people died over a 3 week period. Due to this there is a drive to create many more green areas.

Within Paris, the composition of the energy bill is as follows:

- **5% for cooking**
- **60% for heating**

Electricity costs approximately 0, 12€ while gas is 0, 07€ per kWh.

The Paris Building Retrofit Programme:

The City currently owns 220 000 flats and is planning to increase this amount by another 40 000 units. 5 000 flats have been retrofitted per annum since 2008 in order to reduce the consumption of energy for heating from 240 kWh/m² per annum to 50 kWh/m² per annum.

This programme is the result of community participation and long period of changing mindsets (almost 2 years) – due to the change in the energy bill being absorbed by an increase in rental.

It is difficult to convince private owners of buildings to retrofit the buildings. New financial incentives need to be created to facilitate the changes that need to be made. It would also be beneficial if there were new national laws to support the changes. The Paris administration has no authority to introduce such laws. The cost benefit ratio of retrofitting buildings in order to become energy efficient needs to be analysed carefully, with some notice being taken of the benefits of increased quality of life and better health.

A study, costing 4 million Euros, of 500 buildings is being done covering a period of 3 years, to determine the benefits of retrofitting. This study will show the benefits of the retrofit in 50 000 to 75 000 flats. The City is working on an integrated programme with certified auditors, proposing expected returns through the provision of standard items. There are currently tax rebates for the owners amounting to approximately 40% of the costs.

Heat sensitive photographs were taken of the buildings for the first time in 2009 to show the owners where heat was escaping. These will be repeated to show the benefits achieved and differences in heat emissions.

Focus on Transport

There is a new transport system which is currently being introduced just out of the pilot stage: it is the bicycle sharing system. There are now **20 000 bicycles situated at 1 500 stations**. There have been more than **200 million rentals of bicycles** in the City. Royalties for advertising related to or on the bicycles amount to 50 million Euros' per annum. Payment for the rental of these bicycles is made by credit card. If the bicycle is not docked at the end of the rental period, then a charge of 150 Euros is made against the credit card. For inhabitants of Paris, there is a Parisian card which amounts to 29 Euro's per annum to use any bicycle at any time for a period of less than 30 minutes without any further charges.

There are **7 million car movements per annum** in Paris of less than 3 km!

A public private partnership has been created in the region to handle the bus transport system. There is a Syndicate with the oversight role over the Public Private Partnership that determines the lanes, the bus stops, the frequency of services and the tariffs – taking up the service authority role. There is one single operator of the buses in central Paris, but up to 50 operators in the greater Paris area. The concession is given to the operator for between 15 and 20 years. A subsidy of 70% is paid to the operating company. This is over and above the 50% that employers must pay of the employees cost of the bus ticket.

b. Lessons Learnt:

- Having alternate sources of energy is important for the diversification of power supply and reduces the risk of reliance on coal powered energy.
- It is important to have a policy with public backing, which equates to a will to implement and therefore a commitment of funds.
- The cost benefit has to be sold to the community as the capital investment is large with limited returns, due to the low price of electricity and gas. However the objective is not the economics, but rather an increase in energy efficiency, greater health benefits and increased quality of life.
- Due to this being a new area of development, there is not much evidence yet on the most effective and efficient solutions.

c. Recommendations to France:

- Reduce the heating in all public spaces to a more comfortable level.
- National planning regulations should assist the implementation of energy efficiency measures.

d. Recommendations for implementation in South Africa:

- Political backing and support for climate change is essential to ensure funding.
- South Africa needs to move towards a greener budget.
- National planning policy, planning ordinances and by-laws should all promote energy efficiency.
- South Africa has an advantage of both solar and wind coupled with the high energy prices, and should commit to investment in alternate sources of energy with low carbon emissions (when compared to coal).

5.3.2 PRESENTATION ON SCHOOLS RETROFIT PROGRAM

BUILDING DEPARTMENT

Report on the Energy Efficient Municipal Schools in Paris: A Climate Plan Commitment

a. Introduction and Background

The presentation was mainly concentrated on the **Energy Efficiency Initiative in Pre-Primary Schools and Primary Schools (Early Childhood Development, and ordinary Primary Schools)** in Paris.

The initiative is aimed at addressing the broader Climate Plan of the Agenda 21 Objectives in the 660 Primary and Pre-primary Schools built between 1880 to date with very diverse architectural and technical characteristics. This section of Education is, in the main, under the authority of the Paris Metropole. In this instant, the metropole is responsible for the building and maintenance of the infrastructure and further for the rehabilitation of the infrastructure to comply with the Climate Plan.

The Council adopted the Climate Plan on 1 October 2007 in line with the nationally determined targets that include the **75% reduction in greenhouse gas emission by 2050**, and therefore committed it to the following targets by 2020:

- 30% Reduction in Energy Consumption
- 30% Reduction in Greenhouse Gas Emissions
- 30% Renewable Energy in the Energy Mix

In order to give effect to the above commitment the Mayor of Paris Metropole signed a partnership agreement on 5 October 2007 with the Clinton Foundation to combat climate change by reducing greenhouse emission.

The contents of the discussions centered around firstly, the identification criteria for schools to be retrofitted and secondly, the steps to be followed in order to arrive at their envisaged target of ensuring that the buildings are completely retrofitted in order to save on energy consumption and reduce the emissions of carbon dioxide.

How the Objectives will be Achieved/Implementation Plan

The partnership was assigned to address the energy consumption in the 660 Paris Primary and Pre-primary Schools, with the aim of reducing consumption by 30% by 2020 along with the inherent Carbon Dioxide (CO₂) emissions.

Prioritization in 2009 led to the decision to examine the option of having the work necessary for achieving the target in the following manner:

- 300 schools during the present term of office in the political leadership, and
- 300 schools in the next term, between 2014 and 2017.

The following Steps were followed:

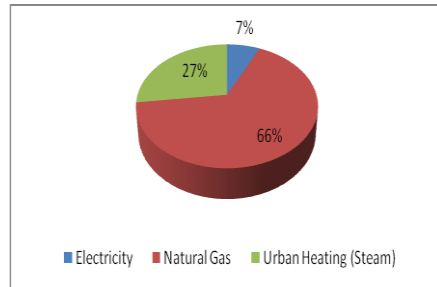
Step 1: An Inventory was done

The total area of the schools amounting to 1,298,000 m² (1,990 m²) was determined and included the following facilities per school (scope of work):

- Classrooms
- Rooms for other learning activities such as libraries, rest rooms, etc
- Canteen
- Kitchen
- On-site accommodation for the caretaker, and the school head.

An audit conducted on the schools indicated that the biggest energy consumption item was **heating** broken down per various sources as follows:

Source	%	MWh _{PE/year}
Electricity	7%	127,867
Natural Gas	66%	175,852
Urban Heating (Steam)	27%	48,201
Total	100%	351,920



Audit Finding: Average consumption in 50 schools for all combined energy sources stood at 230kWh_{PE}/ m²/annum.

Step 2: Acquiring the means to accomplish the task

Partnership Contracts

Public Private Partnerships have been established through legislation with the aim of fulfilling the functions through specific administrative contracts which allows certain public entities to commission private operators to execute the following in exchange for phased public payments:

- Finance
- Design
- Build
- Maintain and Manage structures over a specified timeframe

The contract can only be used if a “prior assessment” has demonstrated its usefulness and the Council of Paris has approved.

Preliminary assessment of a sample of five schools - Duration: Summer 2008 to summer 2009

Five schools were selected through the following criteria:

- Most energy hungry establishment [highest energy consuming schools]
- Poor insulation and energy inefficient technical facilities

The **objectives** of the preliminary assessment are as follows:

- Communicating the City of Paris’ intention in partnership contracts in energy efficiency
- Gauge market responses for operations involving work on buildings

- Assess the key points of the future contract, in particular the soundness of the proposed model

Results of the preliminary assessment

Categorization of energy saving initiatives is as follows:

Technical work on plants and buildings:

- Upgrading the building shell (external doors and windows, insulation of the outer walls roof and floors), and/or the facilities (boilers, lighting, domestic hot water system, ventilation).
- Measures in relation to building operations (maintenance, energy monitoring and control of the technical facilities).
- Awareness measures to train and educate building operators and raise awareness among building operators.

Work to be done on **facilities** is as follows:

- Upgrade boilers (Condensation)
- Lighting (low energy light fittings)
- Lighting control (presence detectors, dimmers)
- Technical facilities management (centrally controlled sensors for air, temperature, hot and, if necessary, cold water)
- Dual flow ventilation (recovers energy from the expelled air and improves the quality of the inside air)

Work that was supposed to be done on **buildings** is as follows:

- Insulate outer walls (from the outside or from the inside)
- Insulate terrace roofs
- Upgrade doors and windows
- Lower ceiling heights
- Create air locks
- Install sun shading devices

The operations are to be carried out as follows:

- Set up **technical facilities** management, then monitor energy use
- **Train** technical teams working on schools, and
- Raise **awareness** among the occupants of the school.

Requirements regarding the application of energy-saving measures

- Guarantee public service continuity and safety of people throughout every phase of work on occupied sites.
- **Compliance with the City's provisions on low nuisance work site** and work site management.
- Maintain efficiency of operations of the public services in charge of running the schools.
- Comply with thermal regulations.
- Take into account the architectural integrity of the buildings and the town planning considerations
- Take into account the presence of asbestos, lead or termites.

Defining the functional scope

- Optimal size of lot estimated at 100 schools to allow the rest to be shared and still allow work to be completed in a short time frame.
- The sampled schools should contain a variety of types of buildings and energy consumption to balance out the rest.
- The target reduction in energy consumption and CO₂ emission will apply to the lot as a whole.
- Proposed estimated contract duration: 20 years.

School sampling criteria

The 100 schools for sampling were selected using the following criteria:

Breakdown by **type of heat** reduction:

Source of heat	Quantity
Gas	72%
Urban heating	20%
Electricity	8%

Breakdown according to the arrangements for operating the school's boiler systems:

School boiler's operator	Arranged operation %
DPA	70%
Public operators	30%

- Evenly balanced groups, based on energy efficiency (utility consumption) and environmental performance (CO₂ emissions)
- Balanced geographical distribution overall 20 of Paris' Districts (*arrondissements*¹)
- The boiler systems must be over five years old .

OUTCOMES

A **provisional schedule** at 30 April 2010, indicated in the table below, was developed with specific dates of each activity:

Date	Activity
July 2010	The Council of Paris approves the principle of a partnership contract
September 2010	Launch the RFP process
Summer 2011	Sign the contract, begin the work and end it by 2011
2012	Work on the second (2 nd) lot of schools begin and end
2013	Work on the third (3 rd) lot of schools begin and end
2016	Last contracts signed for the period up to 2036

Comparisons between the City of Paris and South Africa

Point of Comparison	Paris	South Africa
Primary and Pre-primary School Buildings/Infrastructure	City of Paris	National Government (Public Works)
Maintenance of Buildings/Infrastructure	City of Paris	School Governing Body
Operational function, e.g. Daily Schooling Operations including Salaries of Educators and Heads of Schools	Central Government (Educators) Heads salaries paid by the City Council	Provincial Government through funds from National fiscus
Municipal Services (Water, Electricity, Sewer, Refuse)	City of Paris	Subsidized by Provincial Government (Education Dept) or Section 21 Schools
Property Rates	City of Paris	National Government (Public Works)

b. Key lessons Learnt

- That PPP's can be a very useful procurement and service delivery tool especially when all parties share the same vision.
- That PPP contracts though an important means of ensuring that work is done, have a potential of stalling the desired project. This is mostly, due to the fact that there are different political parties in the Council and their interests might not be the same.
- That there are significant similarities and fundamental differences between PPP's in France and South Africa. In both countries PPP's are regulated and supposed to be based on sound feasibility studies, value for money needs to be received, transfer of risk, affordability and contracts must be entered into. However, the PPP process in SA is over-regulated.
- That in order for the school infrastructure to remain in good condition, other stakeholders should be involved.
- That it is critical to identify the problem at hand, reduce the total number of schools to be rehabilitated for the easy and speedy implementation of the plan.
- That, from the beginning of the project, there are management teams that monitor compliance with specifications as indicated in the contract.
- That when all has been researched, it is important to develop a schedule of implementation with key delivery dates and details on what was to be done (Implementation Plan).
- That Stakeholder Engagement and Communication cannot be over-emphasized
- Politicians, especially Mayors, must demonstrate strong leadership.
- That Landfill Sites, Recycling and Bio-energy Plants are very expensive to construct, operate and maintain and specialist professionals are required.

c. Recommendations

- That France's PPP Regulation be obtained and studied in order to make a comparison to SA in order to address stumbling blocks that exist in SA.
- That thorough planning should be done by all levels of government in an integrated way so to maximise the required resource. This could lead to the construction of cost effective and efficient buildings within specified timeframes and incorporating energy efficiencies.
- The creation of a work schedule with clear deliverables and target dates makes work for all contractors and monitors very easy.
- It is important to quantify the scope of work in order to determine a realistic budget and timeframes for efficiency and monitoring purposes.
- A detailed audit identifying problem area in schools is undertaken by Department of public works.



5.4 Grenoble Alpes Metropole, Wednesday 5 May 2010

5.4.1 PRESENTATION ON CLIMATE CHANGE AND ENERGY EFFICIENCY POLICIES

Grenoble Metropolitan Climate Plan

a. Introduction and Background

The purpose of the visit to Grenoble was to learn from the first French city to implement the Local Climate Plan. The city is often quoted as one of the best example of climate change and energy efficiency policies. The Grenoble Alpes Metropole has one of the most developed and most efficient transport systems. The city, in partnership with the private sector, developed an area where there was an old prison into an eco district with mixed energy efficient residential property.

Grenoble, being a metropolitan community, consists of 27 municipalities. The areas of focus are transport, construction, economic development, waste, environment and treatment of water. There are 200 000 inhabitants in Grenoble city and a total of 400 000 inhabitants when including local authorities in the area. The current administration will be in office until 2014.

There are a total of 74 councillors, with the executive consisting of 20 vice presidents and 800 employees of different categories (A, B, C) that work in communities.

The Local Energy Agency was established in 1998, and the first climate change plan was developed in 2005. There are 70 signatories to the climate plan comprising cities; social housing; energy and water suppliers; education and research; associates; private companies and banks. The partners are appointed and overseen by the Local Energy Agency and the board also evaluates policies of the metropole. The partners have committed to do the following in terms of the action plan:

- Writing the action plan
- Monitoring with key indicators
- Communicate and get buy-in from inhabitants
- Participate in climate change forum every six months
- Set target on carbon emissions reduction by 2014
- Take appropriate measure of adaption to climate change

The plan focuses on three areas; being inhabitants; transport and industry and the target is to reduce energy consumption **by 30% by 2020**.

The target set for inhabitants is to reduce energy consumption by 30% as structures built between 1945 and 1975 are energy inefficient. The programme to revamp these buildings to be energy efficient started on 8 March 2010. The March programme will focus on 10 000 buildings, made up of equal numbers of public and private buildings. The actual intervention is to retrofit the buildings by insulating exterior and interior walls, roofs, floors and windows. The duration for completion of this project is 4 years for both the public and private buildings. The energy consumption reduction target for transport is also 30%. The plan of the Metropole is to have an integrated transport system that is environmentally friendly. The Metropole allocates a budget every year for energy efficient programmes and adjust this annually by 5% above inflation. In fostering cooperation among the partners, four collective projects received financial backing of €10 million.

b. Key Lessons Learnt

- Evaluation file showing achievements in terms of reduction in carbon emissions, reduction in energy consumption and action plan for the following year is submitted annually.
- Good practice file is submitted to encourage sharing amongst partners in terms of achieving the set target.
- Continuous communication is key in staying focused and the two files are used as a communication tool.
- **Commitment and buy-in from all stakeholders** is key to ensure success.
- The will to allocate budget and mobilize financial support from all spheres of government and private sector is critical.
- Integration into urban planning is key in meeting the set target.
- **Research and Development into alternative sources of energy** is a critical factor to advise future processes.
- Long-term programmes require thorough planning and vision.
- **Diversification into alternative energy mix** will improve the climate and quality of life.

5.4.2 PRESENTATION ON TRANSPORTATION STRATEGY

GRENOBLE METROPOLE

a. Introduction and background

The Grenoble Metropole transport system has evolved from cars as a major mode of transport in the 1960s, especially when significant numbers of roadways were constructed for the Winter Olympic Games in 1968. Then in the 1970s SMTC was established as a local transport authority and buses were introduced. In the 1980s the tram system was conceptualized as part of the first urban transport plan and two lines were established in 1987. The park and ride facilities were developed in the 1990s. In 2000 the second Master plan and Urban Transport Plan was developed with the aim of reducing the number of cars on the road. This plan included the extension of the existing B line and construction of C and D lines, the development of an extensive railway by the regional authority and decreasing the speed limit from 110 km/h to 90 km/h to reduce carbon emissions from vehicles. The UTP promotes public transportation, cycling, pedestrian, car pooling and park-and-ride facilities as indicated by the table below:

Mode of Transport	Percentage usage of mode of transport 1992	Percentage usage of mode of transport 2002	New challenge for 2012
Public transport	14%	14%	19%
Bicycles	5%	3%	7%
Pedestrians	27%	30%	30%
Cars	54%	53%	44%

The Grenoble Metropole's public transportation is operated by a private company, namely SMTC, which is proportionately owned by the City Council and the regional authority. SMTC entered into a partnership with SEMITA to operate that transport system. SMTC funded 65% of the capital and the remaining 35% was funded by the external private partners.

The mandate of SMTC as the local transport authority is as follows:

- Organisation and financing of public transport
- Conception and construction of equipment and infrastructure
- Research and development on public transportation needs
- Implementation of global urban transport plan

The Grenoble Metropole allocates a budget of €80 million to SMTC annually and the revenue from ticketing is approximately €32 million. The revenue sources for SMTC as the local transport authority are as follows:

- transport tax – 45%
- salary tax by public and private employers with more than 9 salaried employees – 1.8%
- public contribution of the Metropole and General Isere county(PCL) – 37%
- Passenger ticketing – 18%

There are 4 tramlines covering 33 km and a total of 120 stations. Tram3 opened in April 2006 and was the biggest project from the 2000-2010 UTP - it covers 13.5km and cost €430 million. The tram3 project started in 2004, by demolishing a bridge that carried 60 000 cars daily. The bridge was built in the 1960s and was a symbol of the City for many years; however the policy to make all modes of transport at one level changed the landscape of this town.

The demolished bridge was replaced by the tramline as indicated below:



Before



After

The City has 26 bus lines with 1050 bus stops and 4 evening bus lines. The buses travel approximately 16 000 000 km and transported 78 million passengers. The frequency of buses is 4 minutes in peak hour. Since 2005, 72 buses are running on natural gas. The city also offers specialized vehicles to transport severely handicapped people as indicated by the picture below:



Vehicles to transport the handicapped or physically challenged

b. Key Lessons Learnt

- Continuous development and maintenance of the transport system
- Continuous evaluation of transport policy
- Developing and implementing an integrated transport plan through multimodal stations and intermodal connections
- Develop park and ride facilities to support usage of public transportation
- Ensure affordability for users
- Accessible stations and various transport modes
- Convenience through high frequency
- Real time passenger information
- Image of high quality in public transportation
- Reliable schedule
- Efficient ticketing system

c Recommendation

- The integrated transport plan should be developed with all spheres of government.
- Commuters should be provided with multimodal public transportation options.
- All future public transportation should be energy efficient.



Rush hour on the Grenoble Tram

5.4.3 PRESENTATION ON ENERGY EFFICIENCY IN BUILDINGS, ARCHITECTURE AND ENERGY PRODUCTION

Visit of De BONNE DISTRICT

a. Introduction and background

The De Bonne district is a historical city centre of Grenoble, it is an 8.5 ha French eco district which won a prize in 2009. This area was originally the army barracks of Grenoble which had a lot of army bases in it as it was then on the border of France. A project has been undertaken by the city to transform these historical army barracks into a city centre eco-district. The main focus of this project is diversity, accessibility and energy efficiency of buildings, housing, offices and public facilities thereby improving the quality of life.

The project began in 2000 when the focus was not so much on climate change; the following were the political objectives for the project:

- To extend the city centre towards the third tram line
- To limit urban sprawl by building in the city
- To link the new district with its surrounding urban fabric
- To recreate a sense of continuity to a north-south and east-west grid
- To accommodate a wide variety of functions and uses such as working, consuming, living and relaxing.
- To create integrated homes for families including at least 35% social housing.

In 2002 when the new city government took over the topic of climate change and energy efficiency became priority throughout the country (2012 goals), the project had to be adapted to be an eco-district and the private partner had to conform to these new priorities.



Energy efficient and environmentally designed buildings incorporating business, social housing, green areas and access within close proximity of transport modes.

Creating the eco-district to meet the objectives

- In order to achieve the objective of creating **quality of life** and functional diversity, the structures were designed to incorporate:
 - Family housing units which included 40% low cost housing
 - Schools
 - Old age home
 - Student residences
 - Shops
 - Office space including 1600m² of energy plus buildings
 - Hotels
 - An art house cinema
 - Parks and gardens

- In order to achieve the **objective of enabling first time home** ownership, the municipality allocated **part of the apartment blocks to be affordable by putting a cap on the price** that the developer may charge for these properties. The apartment blocks are integrated in terms of the lower, middle and upper class, the first 5 floors are allocated to either low cost

or middle (reduced price) properties and the penthouses are highly priced luxury apartments.

- In order to achieve diversity on commercial spaces they created a dual-aspect area on a grid pattern with shops, restaurants, supermarkets, energy-plus office blocks and underground car parks.
- In order to reconcile urban density and green spaces, 40% of the former barracks was demolished to form green spaces i.e. parks and gardens which are eco friendly, water efficient and low on maintenance by using wood chips, stone, felt and the underground stream for irrigation. The plants are grown directly in the ground between the housing blocks and watered through rain water infiltration to avoid excessive hard-surfacing of the ground. The water features are designed to recycle water which is cleaned by plants; there was an interesting use of a wind monitor in order to regulate the water levels of the fountains.
- In order to meet the objective of accessibility in urban density the project is designed to facilitate sharing of public area, narrow roads, low speed limit, cyclist facilities and the district on one general level. The housing units and pavements are also adaptable for disabled persons' accessibility.

Energy efficiency measures

Objectives have been put in place to reduce energy consumption by 40% for all housing units. The offices are considered as energy positive as they generate more electricity than required and tap it in to the network. No air-conditioning is included in shops.

The use of renewable energy

This is done through 1 square meter (1m²) of solar thermal collectors per housing unit; 1000 square meters (1000m²) of photovoltaic panels (solar) on the commercial roof; 430 square meters (430m²) of solar panels on the energy-plus office buildings.

New Development targets set nationally are for 50 kWh/m² of living area per annum for heating (primary energy). Hot water targets are 20kWh/m² of living area/year excluding solar thermal

energy. Electricity targets for communal areas amounts to 10 kWh/m² of living area/year (final energy).

This is achieved through the following **technical innovations**:

- Super-insulation of external walls (extra insulation and width of walls);
- Double-flow ventilation (the air from cooking is extracted and the air sucked in is warmed by the heat in the air being extracted in order to ensure the house temperature does not drop too drastically);
- Use of mini-cogeneration systems (being the creation of heat through using gas in order to warm water for home heating purposes, the extra heat is used to drive a vapor motor which generates electricity. This is done effectively in Holland.);
- Solar thermal heating;
- High-quality glazing;
- Treatment of thermal bridges (the separation of the balcony slab and the floor of the internal rooms with some insulation to ensure external temperatures are not transferred through the floor.)

Many measures are taken during the construction process to ensure minimal carbon emissions including recycling on site, such as crushing demolished buildings for infill material. These processes have saved more than 10 000 truck round trips.

The truck movement on the site is limited to reduce carbon emissions and sand is wet to reduce dust. Fiberglass pipes are used for the exhausts of the construction vehicles as they are easier to install, quieter and faster to implement.

Financial gains

Each participant in the energy value chain is enriched due to the electricity input, reduced heating costs, and improved building construction processes. While the costs of construction are up to 15% more than normal construction costs, the environment requirements represent 7% - 10% of the pre-tax cost of the works, excluding consultant's fees.

b. Key Lessons Learnt

- Housing cannot be constructed in isolation – should be multifunctional.
- Integration of social housing with the more affluent homes.
- All development to comply with energy efficiency targets with the aim to achieve targets set nationally for household consumption of energy.
- Infrastructure, especially transport infrastructure. is adapted to ensure accessibility to all their citizens.

c. Recommendation

- Municipalities to ensure changes in bylaws to give thought to energy savings.
- Housing must be integrated with all strata of people, shops, offices, schools and parks.
- A concerted effort must be placed on renewable energy especially solar water heating and retrofits of all municipal buildings.
- Work places should be close to the homes to reduce the carbon footprint of travel into the cities.
- Increase the number of speed bumps to reduce speed on roads thereby reducing the carbon emissions.

5.5 Paris, Thursday 6 May 2010

5.5.1 DISTRICT COOLING SYSTEM

CLIMESPACE: By: Kamel El Hammami and Benoit Senejean, from Climespace

a. Introduction and background:

Climespace, a subsidiary of GDF Suez Group, was founded in 1978. It shares the same values of the GDF, namely protecting the environment and promoting sustainable development. It operates as a centre of excellence of GDF Suez and has developed chilled water networks all over the world, notably in Europe, Asia and the Middle East. They propose custom-built or build and operate solutions fitted to each customer's needs and constraints. Climespace became a concessionary of Paris City in 1991 with the mandate to produce and distribute chilled water for buildings in Paris in order to effectively manage air-conditioning. The network, which was created under a build-operate-transfer contract with the City for 30 years, spans all processes from the water cooling plant to the customer's doorstep. Climespace does not install or maintain the air-conditioning systems in buildings and are therefore not responsible for the quality of the air in the buildings.

The targets set by Climespace are:

- Reduce the impact on global electricity consumption by between 30% and 50%;
- Limit the impact on global warming by -40% in terms of tons of CO₂ equivalent (TEWI) compared with a stand alone air-conditioning unit;
- Reduce HFC refrigerant emissions contributing to the greenhouse gas effect by -70% compared with a stand-alone unit;
- Decrease water consumption by -65% compared with a stand-alone air-conditioning unit;
- Reduce the use of water treatment products by -80% compared with stand-alone air-conditioning units.

The Operation Description

- There are two water networks, the first being the inlet and outlet piping circuit taking water from the river and returning it to river downstream, the second being the closed water cooling system that runs underground in Paris.
- Climespace meshed networks span a length of 70 km, one of the largest and longest networks in the world.

- There are 7 production plants in Paris and one outside central Paris and three storage plants that store water at 2 degrees Celsius (2°C).
- The stored water is used for cooling purposes during electricity peaks in order to manage the expense of cooling water.
- A large portion of the operation is underground, namely the chillers, exchangers and the pipes.
- Free cooling occurs when naturally cold water can be pumped through the network without using any chilling processes, producing savings of up to 80%.
- Operations of the network are monitored on a 24/7 basis to ensure availability and guarantee delivery of refrigerated energy.
- Regular audits are performed on facilities and solutions are proposed by Climespace to optimise the energy efficiency of the networked buildings.

It is possible to use sea water for the project in order to supply the chillers. Water is taken from about 1 km away from the seashore as it is usually fairly consistently cool – about 5 degrees Celcius. This process has been used in the airport. Titanium parts are used to ensure there is no corrosion. The chilled water system for distribution to various companies for cooling is a closed system, without additional water being required, resulting in an 80% reduction in chemical products injected into the cooling circuits. The system, bringing in water from the river or sea to assist with the cooling, discharges water back into the source making the closed circuit and the cooling system a water efficient process.

Water of more than 30 degrees Celcius may not be discharged into the river. Water is also only allowed to be discharged at a maximum of 5° higher than it was when taken out of the river.

The energy distributed in 2008 amounted to 398 GWh and it is forecast that 460 GWh will be distributed in 2010. The current COP, or the ratio between the cooling energy and electricity is 1:4, or in other words, this system is four times more efficient than an electrical system.

Example of a plant:

Canada Plant (named after the area it is in) is approximately 10 meters from the banks of the River Sienne reaching 30 meters under the ground, and consists of:

- Two floors of chillers
- One floor of pumps
- One floor of generators

The Seine River water is used for the chilling process. This kind of cooling system is used for the energy saving purposes as compared to independent air-conditioning. It uses 14% less electricity compared to other plants it is therefore energy efficient.

The current customers are hotels and various buildings, including the Louvre, which is currently the largest customer of Climespace.

The statistics related to savings achieved are as follows:

Impact	Savings
Power Consumption	- 50%
Greenhouse Gas	- 70%
Water Consumption	- 65% *
Use of Chemicals	- 80%

* Other cooling plants use **potable water**. In France 1 kilolitre (1kl) of water costs about 4€ (approximately R40-00).

During winter, the Seine River water is so cold that it is not necessary to use the chillers for the air-conditioning system, further adding to the saving of electricity used for temperature control.

Aesthetics:

This cooling system respects the environment and is more aesthetically pleasing than other conventional mechanisms, particularly in a cityscape where the views from tall buildings are often marred due to the large machines on rooftops. Besides reducing the visual pollution, this system also reduces noise pollution as there are no motors running on rooftops – the operations are

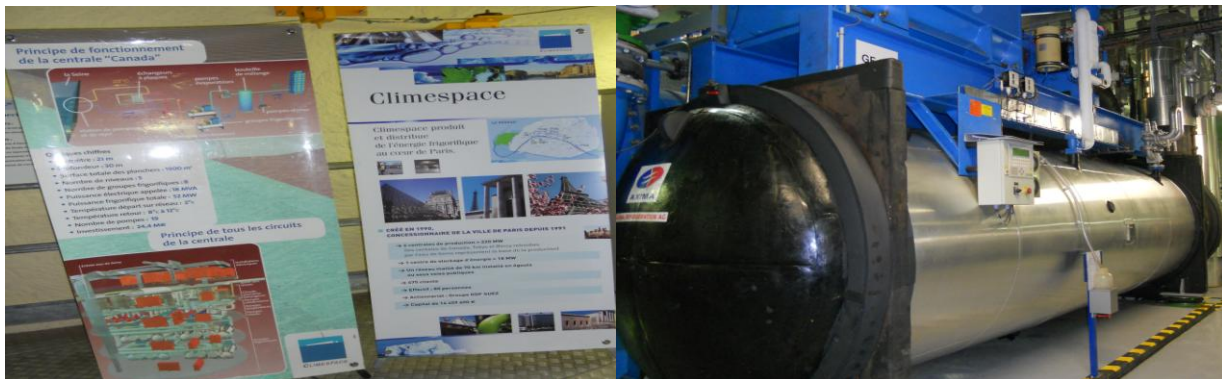
underground and separate from the buildings, centralized in one place. Rooftops are left clear of machinery and could still be used for other forms of energy efficiency mechanisms, such as solar, in line with the Climate Plan of the City.

The Customer:

Currently there are about 475 customers in Paris on this network, representing 500 buildings. Water is cooled to the customers' requirements, taking into consideration the heating that will occur as the water is transported to the individual business chillers for air-conditioning. Most water leaves the system at 2°C, however, the water can also be chilled for refrigeration purposes, to approximately -7°C through the addition of anti-freeze agents. The initial cost of implementing the network is high. It is essential that there is sufficient density of demand to make the system worthwhile.

b. Lessons learnt:

- This is definitely a first world system that could be implemented where there are no other pressing priorities.
- The system operates on economies of scale and densification is therefore a priority.
- As the water released from the system is warm and it could therefore be used in conjunction with a desalination plant, which requires the heated for the desalination process to start.
- The system of monitoring the provision of water, water leaks and the temperature of the water distributed could be aligned to current waste water monitoring systems.
- Specialised skills are required and dedicated educational streams would be required to be established to ensure that adequate skills are transferred.



Climespace cooling mechanisms visited by the delegates- transformers used in the cooling process

c. Recommendations to France

- The overall impact on the health of the citizens should be monitored.

d. Recommendation for implementation to South Africa

- The costs of introducing small scale energy efficiency processes in single buildings could be reviewed in order to determine cost and operational effectiveness.
- As the cooling system does not use conventional air blown processes, the ability to retrofit this kind of system extensively would have to be carefully researched.

The Motto of Climespace is well worth remembering: **Energy is our future, let us save it!**



Delegates overwhelmed and concerned with the process of extraction of river water – In front of River Seine

5.5.2 VILLE DES MUREAUX

VISIT OF TOWN HALL (Town Council)

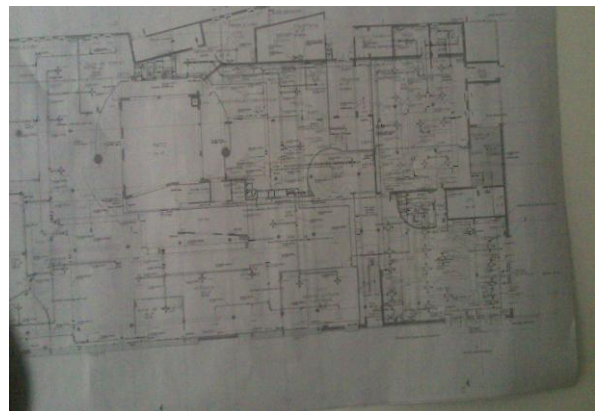
a. Introduction and Background

The delegation visited the city of Les Mureaux where we had a warm reception.

Location	50 km from Paris and the banks of the Seine along 3 km of town path
Population	32,000
Area	980 Acres
Number of Councilors	39 including the Mayor and 13 Commission Councillors
Mayor	His Worship Francois Garay
2010 Budget	Capital Investment: 54.52 m € + Operating: 62.94 m € = 117.46 m €
Functions	Communication (2%), Commerce & Economics (2%), Services (21%), Finance (4%), Urban Functions (6%), Public Transport (2%), Social Housing (3%), Culture (8%), Sport (5%), Law Enforcement/Security (7%), Environment (7%), Other (33%)



The Energy Efficient and Energy Producing Building



Ground plan

The Energy Efficient and Energy Producing Building

The Municipality decided to centralize services at one building (“one-stop service”) to enhance efficiency with a specific focus on saving money, energy and space. The Municipality made a conscious decision to utilize technology in order to contribute to energy efficiency and ensure greater operational efficiency and effectiveness. This decision has resulted in improved customer services which are much appreciated by the local citizens. The planning and erection of the office building formed part of the development of a policy and strategy on energy efficiency.

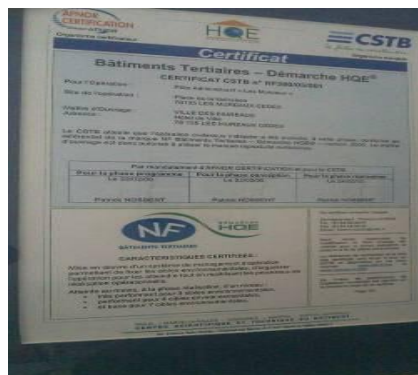
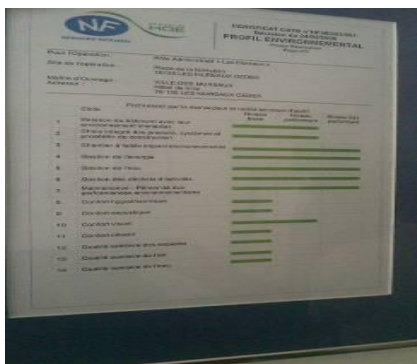
The Council Chamber is the only remaining section of the old building which was retrofitted to serve the purpose of improved service delivery and energy efficiency. The building is a mix of a retrofit of an existing building and a complete new section. **The building is 4 500m² of which the retrofit is 700 m² in extent.** Approximately 200 employees work in the building.

A number of measures were implemented in the design to enhance energy efficiency and support environmental-friendly principles. These include optimal use of natural light.

Each office has a view of green open spaces strategically located throughout the building. The offices also open on the green space quads. The organization uses centralized copy and printing machines which are located in the passages of the building. This measure led to employees considering each print job, but also encouraging employees to move around.

Acknowledgement

Les Mureaux has established a *best practice* in Energy Efficiency and Energy Production and is the pioneer in France. The completed building was the first in France to receive the *High Environmental Quality (HEQ) Award* and led to the erection of many more environmental-friendly buildings in Europe. The HEQ is based on the performance of the organization against the following 14 key performance indicators:



Environmental Profile			Level of Performance		
ECO CONSTRUCTION	01	Building integration in its direct environment	Basic	Excellent	
	02	Selection of construction products, systems and process	Basic	Excellent	
	03	Low environmental Impact building operation	Basic	Excellent	Adequate
ECO MANAGEMENT	04	Management of Energy	Basic	Excellent	Adequate
	05	Management of Water	Basic	Excellent	Adequate
	06	Management of Waste	Basic	Excellent	Adequate
	07	Environmental performance sustainability	Basic	Excellent	Adequate
ECO COMFORT	08	Hygrothermic well being	Basic		
	09	Sound well being	Basic		
	10	Sight well being	Basic	Excellent	
	11	Comfort of Noise	Basic		
ECO HEALTH	12	Quality of Open Spaces	Basic		
	13	Quality of Open Air	Basic		
	14	Quality of Open Water	Basic		

Legend:

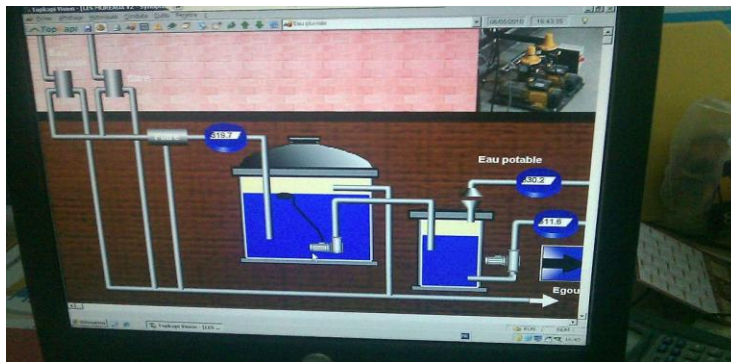
Basic

Adequate

Excellent



The Heating and Cooling Systems



A very important part of energy efficiency in the building is the *heating and cooling system* which is centralized and housed in the basement of the building. A borehole was sunk to extract underground water. The underground water is extracted at a depth of 35m (metres) and the temperature at extraction is 12°C.

During winter and cold days the water is heated through a heat pump and circulated via the network of the building in order to provide heat. The network is an under-floor system in offices, passages and seminar rooms. The optimum operating temperature is between 19-21°C. The network is split for different sections of the building to allow control for optimal use. The system can be controlled to supply sections according to needs and occupancy.

During summer and on warm days the same system is used for cooling, however the heat pump is switched off to allow a free flow of the water at 12°C through the network.

To conserve energy and enhance efficiency all pipes of the *network are insulated*. There is no water usage as it is rather a closed system with the water being deposited back to the groundwater system. The deposit takes place upstream to ensure that the water is mixed with the natural source for re-use. In addition to the above, the municipality developed a *dual water reticulation system* for the building. Drinking water and water for use in toilets are on separate networks. *Rainwater is harvested* from the roof and stored in a 20kl capacity tank in the basement. This water is used (and metered) in all toilets in the building and accounts for 60% of consumption, an excellent water saving initiative.

The municipality also introduced *solar water heating* as a measure to enhance energy efficiency. The water is stored in a 300l (litre) tank and distributed for use in bathrooms of employees. On our visit the temperature of this water was at 53°C which proves the efficacy of the system.

A very interesting innovation is the *green roof*. The roof is of concrete and covered with a layer of 15cm soil. Indigenous plants were put in to improve the view of offices looking out on the roof. This innovation also leads to better insulation.

Another environmentally friendly measure is the use of *waste recycling*. Recycling is done in bins with separate compartments which are colour-coded. Waste recycling thus takes place at the source which is more efficient and cost-effective.

Costs

The initial Capital Investment for the system was in the amount of 72,000€ and annual Maintenance amounts to 11,500€. However, the system realizes a 45% saving in energy.

b. Key Lessons Learnt

- This is (one of) the best and most exciting innovations/interventions of the tour.
- That energy efficiency projects at municipal buildings is not very expensive and can be practically implemented, yielding significant cost savings and would contribute to the reduction of carbon emission.
- The solutions make business sense. It is practical, reasonably affordable and provides value for money.

c. Recommendations

- That a copy of Les Mureaux Municipality's feasibility study be obtained for further analysis.
- That a formal Partnership (Memorandum of Understanding) be entered into between Les Mureaux Municipality, AFD and INCA to assist financially to conduct feasibility studies and the implementation of initiatives.
- That a South African municipality be identified as a pilot site to conduct a feasibility study.
- That funding application is applied for from the AFD to conduct the feasibility study.
- That a "Task Team" be established with specific terms of reference and roles and responsibilities to drive the project and to account to donors.
- That delegates volunteer to serve on the Task Team.
- That the volunteers obtain written approval from their respective municipalities to serve on the "Task Team".

5.6 Paris, Friday 7 May 2010

5.6.1 BUSINESS MEETING

ENERGY EFFICIENCY, ENERGY PRODUCTION AND WASTE MANAGEMENT

UBI FRANCE, ADEME & FRENCH COMPANIES

a. Introduction and Background

The purpose of the meeting was to gather information from French companies on energy efficiency, energy production, waste management, etc. The delegates comprised:

- Jean-François GOUMY – UBIFRANCE
- Didier BOSSEBOEUF – ADEME
- Laurent CALLIERREZ – ADEME
- Ray SPANO -Coteba
- Sony HO - TERPHO
- Oscar VILA – TERPHO
- Thierry LEPERCQ – Solairedirect

5.6.1.1 Presentations were made by the delegates from the various South African municipalities on the study tour:

- City of Cape Town
- Emakhazeni Local Municipality
- City of Johannesburg
- eThekweni Metro
- Hibiscus Coast Local Municipality
- West Coast District Municipality
- Theewaterskloof Local Municipality

The brief was for delegates to highlight the energy efficiency projects and needs of the various Municipal areas.

The projects piloted and investigated by various municipalities included:

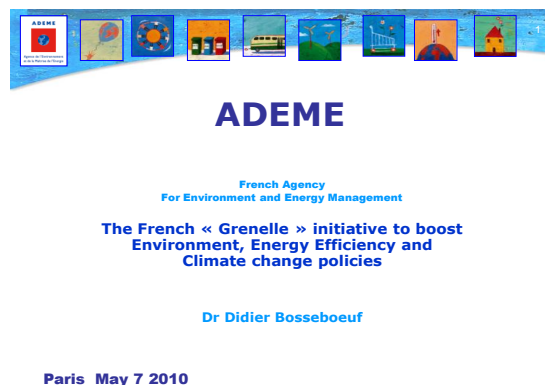
- Solar water panels for low cost housing;
- Light emitting diode (LED) streetlights and traffic lights;
- Retrofitting of municipal administrative buildings with energy efficient mechanisms;
- Heat pumps for the extraction of warm air from outside to warm water;
- Greening and implementation of energy efficiency programmes within council buildings;
- Wind turbines (wind farm);
- Replacement of inefficient pumping mechanisms in municipal pools, reservoirs, water reticulation networks;
- Energy saving initiatives at schools to reduce carbon footprint and provide educational information to learners.

The main **challenges in South Africa** were as follows:

- Shortage of technically skilled staff;
- Development needs taking priority over energy efficiency programmes;
- Non-standardised equipment and a flood of untested equipment on the market;
- Lack of affordable funding and restrictive legislation
- Low level of use and research on renewable energy;
- Expensive technology due to low usage.

5.6.1.2 Presentation of the French Policy in Energy Efficiency:

Presented by Dr Didier Bosseboeuf – ADEME



ADEME is a public agency, formed in 1992, as a result of consolidating three previously individual agencies or bodies dealing with waste management, energy efficiency and air quality. It is under the joint supervision of the Ministries in charge of Ecology, Energy, Sustainable Development and Sea;

Green Technologies and Climate Change negotiations; and the Research Department. The agency focuses on implementation of national energy policies as designed by the Ministries. Its estimated budget is 1,073 m €. The aim of ADEME is to remain a point of reference for the general public companies and local authorities acting as the State's tool to generalise the good practices designed to protect the environment and energy savings.

This is achieved through:

- **Expanding knowledge** in terms of **technology and innovation** through studies and statistics;
- **Communicate information**, educate and train all relevant role players;
- Acting **as advisors** by developing advisory services for the French government, local authorities, households, etc.
- **Helping in decision making** and implementation of actions through financing replicable projects.

The European Climate Energy package is known as the 3X20 policy; being:

- Improve energy efficiency by at least 20%,
- Increase renewable energy by 20% and
- Reduce carbon emissions by 20%.

Implementation of the Policies in France:

- New buildings in 2012 will have to have a minimum primary energy consumption of 50kWh/m² p.a.
- New buildings in 2020 will be required to have a primary energy consumption of lower than the renewable energy produced by the building (energy positive).
- Regulations for existing buildings constructed before 2020 aiming at 30% reduction in primary energy consumption.
- Specific targets for state and public owned buildings aimed at a 40% reduction of energy consumption and 50% reduction in Green House Gas (GHG) emissions before the end of 2018.

- Specific focus on low income households starting with 800 000 dwellings with a consumption higher than 230 Kwh_{PE}/m² per annum, amounting to a full rehabilitation to reduce primary energy to lower than 150kWh_{PE}/m² per annum.

Incentives offered for energy efficiencies and renewable energy:

Buildings:

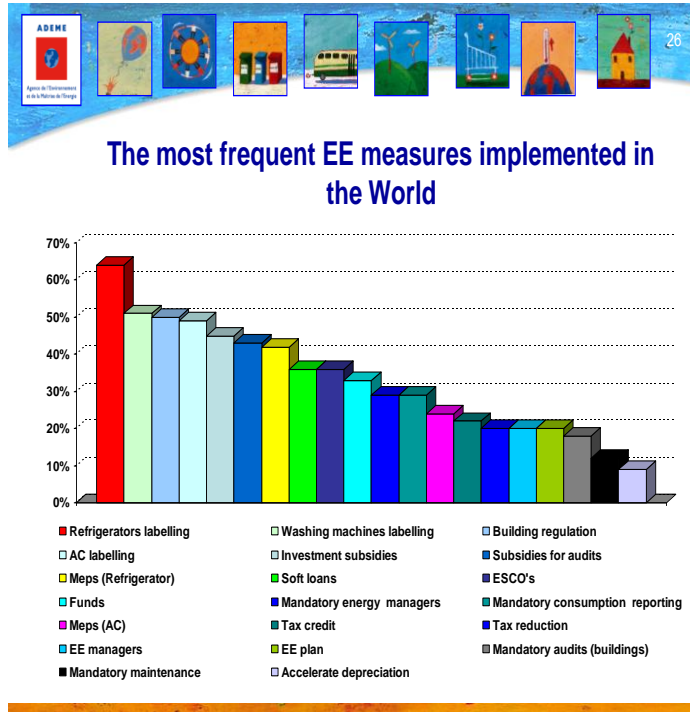
In Europe the main focus is on retrofitting as construction of new buildings is minimal.

- There is a **tax credit** for households for efficient equipment **purchasing (25 – 50%)**
- **Zero interest rate loans** for building refurbishment or for new construction. This is subsidised by the government to the value of the interest on the loan, making it an interest free loan for the refurbisher or developer of the building
- Energy efficiency **obligations for energy suppliers** have to be realized at the consumer level. Certificates are issued as accreditation to the suppliers for enforcing these energy efficient measures at consumer level. A penalty of 2cts€/KWh is levied for non-compliance.
- Diagnostics of energy performance in the building (to assist buyers of buildings to understand the energy requirements they will be facing)
- **300 Local information centres** have been implemented to support local communities.

Transport:

- There is a new European agreement on the car efficiency to be introduced in 2012 – and at this time there are only 3 cars on the market that meet this requirement.
- The labelling, as put on refrigerators in the past, is being used in the car market.
- A **scrapping subsidy** on cars is being introduced to encourage the scrapping of old energy inefficient vehicles. There is a significant penalty for old inefficient cars, which provides subsidies on efficient cars. It is a closed, no-cost system. This has significantly transformed the age of the cars on the road and the energy efficiencies.

The most frequent measures implemented in the world:



A survey of 100 countries was undertaken to understand the impact of energy efficient measures introduced. The top five effective measures were considered as:

- Refrigeration labelling;
- Washing machine labelling;
- Building regulations;
- Air-conditioning labelling;
- Investment subsidies.

The least effective measures were considered to be the mandatory maintenance programme and a process of accelerated depreciation.

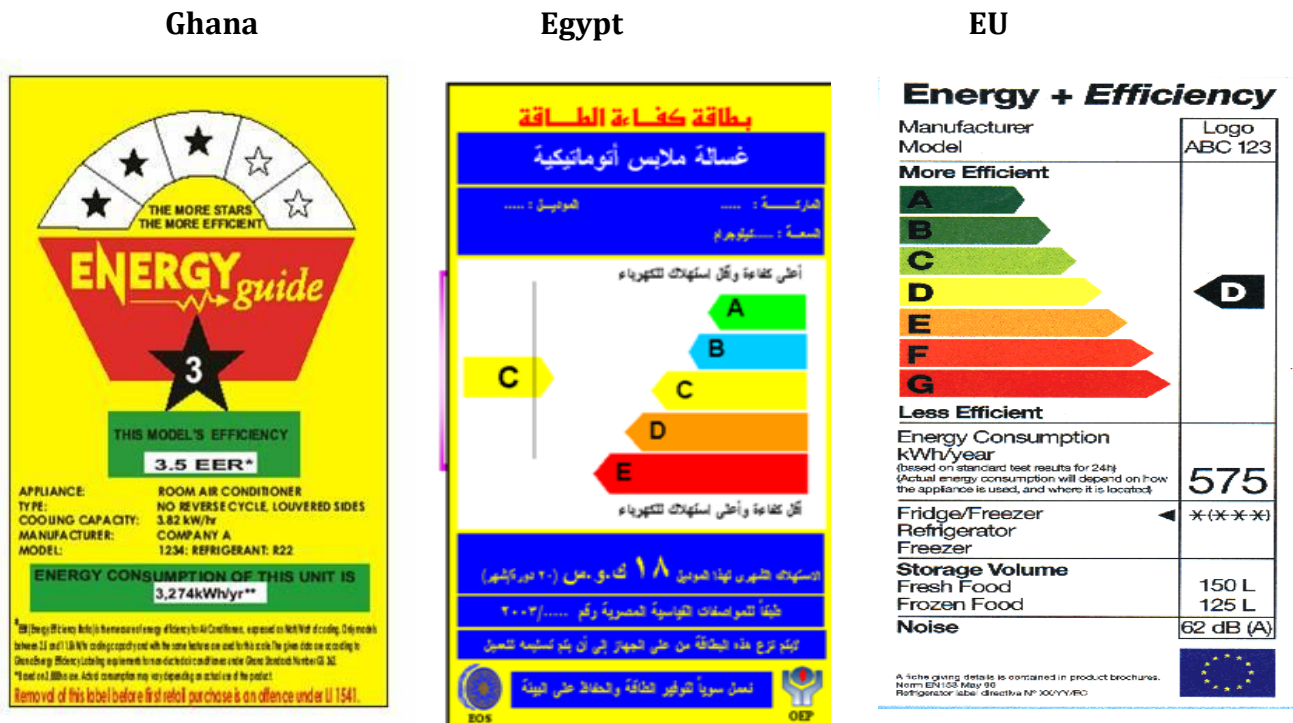
In order to force good practices around the world it was suggested that the following communication measures be put in place:

- Labelling of various electrical appliances;
- Educational campaigns and training events at all levels;
- Audit tools;

- Media campaigns;
- Colour coded information on load situations on TV.

Suggested Way Forward:

- Subsidise low cost housing for energy efficiency measures;
- Focus on retro-fitting of existing buildings;
- Regulatory by-laws to ensure energy efficiency on new development;
- Mandatory regulations regarding energy auditing, energy reporting and energy saving;
- Government needs to secure a certain level of financing to sustain and implement energy efficiency policies.
- Consultation with public and private banks to develop energy efficiencies service offers through negotiations for the end user.
- Quality control of imported equipment and certification.



Labelling of electrical appliances introduced in the EU and other OECD countries

5.6.1.3 Promotion of Energy Efficient Products/ Services from the Various Company Representatives

COTEBA:

- Energy efficiency focus on existing buildings is essential.
- Consider the return on investment when improving the energy performance to understand the payback period.
- Train up any building operator to ensure the energy in the building is utilised optimally.
- Renewable energy is essential and there are examples of PV farms that can be reviewed and introduced.
- Geothermal energy is gaining more attention in Europe and many places are conducive to using this.
- Hydroelectric power is a potential in higher lying areas.

Areas of expertise offered by COTEBA included:

- urban networks for waste management and water
- Maritime processes including coastal protection and mitigating rising water levels.

SOLAIREDIRECT was already working in:

- Building and constructing solar power processes, household as well as solar parks;
- Involvement of the community in the management and maintenance of the solar infrastructure to improve buy-in;
- Sustainability of projects;
- Project developers working on the West Coast of South Africa;

SOLAIREDIRECT proposed that South Africa:

- Examine the possibility of generating power in each community in the country that is in line with Eskom power supply price. SOLAIREDIRECT is working on this type of project in a partnership backed by IDC.
- Take particular interest in solar power and long term contracts with the community – of up to 20 years.

THERPHO Company

The company researches and develops engineering solutions with the aim to reduce energy consumption.

- Working with **thermal and solar panels** for the assimilation of energy;
- Their solution provides hot water through solar energy with a guarantee of a **reduction of 80% energy usage**;
- Policy is to produce in the area in which the product will be used, i.e. it is assembled in the local area;
- This is a **low tech solution to water heating**, not utilising expensive materials, made with glass and aluminium;
- Can change the temperature of water from -10°C to 40°C with a specific liquid chemical reaction in the system simply using solar energy;
- It is **30% less expensive** than other technology currently available in France;
- The fluid and the technology is produced in France, but it can then be manufactured locally – like Coca-Cola – buying the concentrate;
- Moving into the **Indonesian market, Singapore and Malaysia**, currently closing a deal with China;
- With 1 KW of sun, 920 watts of heat can be obtained;
- Works with a motorised panel and a tracker that keeps it in optimum position to the sun
- The same results would be achieved with **thermal technology using 6 meters of piping** - this system only uses one panel; a solar system producing the same output would cover 14 m^2 for the same result..



Solar panel with aluminum and Glass



Calorific convertor liquid in the tube

b. Key Lessons Learnt

- First review energy efficiency and then manage the expansion of energy needs through the production of renewable energy.
- Voluntary agreements can be entered into with various hotels and industries on energy efficiency (example provided – Atcor hotel group)
- In Barcelona, all new buildings must have solar water heating. Huge efforts have been made through regulation. It may be worth studying the results.
- First world countries propose that the price policy which reflects the real cost is a prerequisite – as it enforces efficiency.
- Test centres need to be established to ensure that imports are in line with any labelling policy of the importing country.
- All policies are effective in one or other situation, it is essential though to find the most effective package of policies with far reaching consequences/positive effects.
- Consultation and communication with all stakeholders is essential.
- Policies need to be implemented with sustainable financing.

c. Recommendations :

- Policies to drive energy efficiency must be communicated and committed to by National Government and Eskom.
- National committees driving energy efficiencies should be established with representation from both provincial and local authorities.
- Local authorities must give effect to national strategies and implement policies that are sustainable.
- National Government should consider providing subsidies and rewards to companies, industries, households, NGO's, etc. for implementing energy efficient initiatives.
- Savings arising from energy efficient initiatives must be monitored to ensure the country is working towards a 10% reduction in energy.

5.6.2 AGENCE FRANÇAISE DE DÉVELOPPEMENT

By: Agence Française de Développement (AFD)

a. Introduction and Background

The objective of the presentation was for the Agence Française de Développement (Afd) to provide an overview to the delegates and the type of projects that are funded.

Agence Française de Développement is a development finance institution and has representation in over 60 countries. PROPARCO is financing the private sector. It provides a wide suite of financing product with the ability to lend to local authorities through local commercial and/or development finance institutions. The Afd disburse more than 50% of funds towards climate and energy programmes and provides due diligence services on carbon emissions and energy saving potential.

The energy strategy produced three years ago focuses on the following three pillars:

- C- Lean Energy (low carbon emission)
- Energy security
- Energy Access and electrification

Energy consumption research was conducted to classify consumers of fossil fuel energy per sector and power and industrial sector were the biggest of users. Green carbon emissions is forestry and agricultural.

Municipalities can play a key role in Energy & CO2

Savings as follows:

- As direct energy consumers with potential energy savings (street lighting, public buildings, municipal transport fleets, schools, hospitals.)
- As urban planner, with strong energy issues on supply and demand sides (land uses, building codes, transport, urban waste and sewage schemes.
- As owner of urban infrastructures (local electricity grid, waste treatment units, public transport.)

In Europe there is 20-20-20 energy savings objective by 2020 (20% reduction in energy consumption; 20% reduction in carbon emissions by 2020). There is an organization to promote international cooperation to achieve this objective. Strategy for urban plan should enhance energy efficiency, given the long-term nature.

Montpllier Case –

An energy unit was established with the responsibility to monitor energy expense and implement mitigating strategies. This was as a result of the oil crisis in the 1970s. The unit reported directly to the Mayor and gave feedback on energy consumption. The unit is also directly in charge of implementing energy efficient project.

The objective of the energy unit is to coordinate actions on demand and supply sides as follows:

Acting on the main energy consumption sectors

- Buildings (Residential and Commercial)
- Urban Transport
- Urban Waste
- Local Manufacturing sector

Restructuring the urban energy supply

- Local power production (cogeneration, waste to energy)
- Direct fuel and heat (biomass, solar water heating...)
- Refined fuels (mixing biofuel and oil)

Importance of energy planning

The planning of the cities impacts on energy consumption; dense cities consume less energy. In South Africa, data is not available at local level for detailed analysis.

The world is facing electricity and fuel increasing demand, power shortage situation and energy rising costs and hence countries that are serious in implementing climate and energy efficient plans can consider the following:

Electricity

- Promotion of local power generation to optimise energy supply (Solar water heaters, biogas from urban wastes, cogeneration.)
- Demand side management to scale up energy efficient end-uses (EE devices, specific tariffs, change in behaviours, smart meters.)

Fuel

- Focus on traditional domestic fuels (biomass especially), due to their importance in urban developing economies.
- Local Biofuel, for 3 to 10% oil substitution, if favourable conditions

South Africa may not be conducive to promote biofuel due to limited land availability.

Urban Carbon Lean Transport

With increased density urban transport energy consumption increases drastically, together with local air pollution and global CO₂ emissions, at the same time as congestion problems.

- EE focus on urban transport plans
- Priority focus on public transportation
- Increased regulation of individual vehicle use, by implementing parking policies.
- Specific developments of “soft modes” schemes or non-motorised transport options (two-wheels and pedestrians transportation)

Energy Efficient Buildings

The first step is to start with large buildings. There is a big programme in Tunisia where government provides technical assistance to energy upgrading of existing buildings. In certain instances energy savings will pay for the programme cost. The roll out of energy efficient programmes in buildings could be financed in various ways, e.g. end users payback savings through the bill.

There are potentially high energy savings to be made in buildings (30 to 40 %) but with constraints: inadequate organization and financial mechanism, large number of stakeholders, new types of investment

- On new buildings, implementation of “Energy Efficient programs”, mobilizing various stakeholders (estate developers, architects, engineers, construction companies)
- Launching of massive programs for energy upgrading of existing buildings (public and commercial)
- Enhancement of energy regulation on buildings
- Demand side management (DSM) schemes (Solar water heaters, high energy efficiency appliances, smart meters)

Climate Plan

Afd is in the process of finalizing a 100 000 000€ (One hundred million Euros) loan to EtheKwini Metro for a programme on energy, water and carbon dioxide (CO₂) savings. The objective of such a major initiative is to optimize the energy consumption and reduce the CO₂ emissions of the municipality. The expected results from this programme are 30MW generation from renewable sources; and 300 GWh savings in energy consumption and 2 500 000 ton reduction of CO₂ emissions. Further information on the above energy saving project is as follows:

Coordination	Bureau of Energy
Main applications	<ul style="list-style-type: none"> • Energy savings in public buildings through the installation ten thousand (10 000) solar water heaters plus five thousand (5000) smart meters • Renewable local power generation (Minihydel, Biogas from waste and sewages, Waste to heat) • Energy efficiency and management in hostels • Energy savings in water supply

b. Key Lessons Learnt

- The Municipal Integrated Development Plans (IDP) and investment plans should incorporate energy efficiency for budgeting and implementation purposes.
- South African municipalities could increase momentum in implementing climate and energy plans by cooperating and working together. Currently municipalities seem to be working in isolation, not sharing best practices.
- That there is a need to developing energy efficient plans per sector, with high level integration between sectors.
- Initiatives for energy saving pilot projects should start with the poor communities since they seem to consume more energy in an irresponsible manner, as compared to the rich communities. The savings made from the initiative can then be used to subsidize the poor communities.
- The success of the energy saving projects in France in general and Paris in particular is an indication of a well planned, coordinated and monitored plan, supported by all stakeholders. This therefore calls for all energy related companies to establish an energy unit where ideas will be shared on the future of energy and initiatives of energy saving in compliance with the global goal of reducing the emissions of carbon and saving the natural resources.

c. Recommendations:

- Establishment of an Energy Unit both nationally and locally to monitor consumption per sector and ensure implementation of climate and energy efficiency plans. Lessons could be learnt from the Ethekewini Metro, which already has an Energy Office established.
- Energy offices should be established at all major municipal buildings, malls and Community centres to create awareness and market various green and energy initiatives, communicating and retaining focus on energy efficiencies with communities.
- South Africa should cooperate with countries that have already implemented energy efficient plans within Africa and in Europe, in order to share ideas and develop and/or transfer skills to the South African counterparts.

- Planning for energy efficiencies at Municipal level should affect all sector plans to be included in the IDP.
- In order for such an integrated approach to work, a dedicated monitoring mechanism should be developed that will, amongst others, monitor progress made on budget commitments and review energy saving programmes as indicated in the integrated sector plans in the IDP.



Delegate's meeting with AFD – Paris 7 May 2010

6. KEY FINDINGS AND OVERALL RECOMMENDATIONS

In achieving the objectives and outcomes of the tour as highlighted in page 5, the group believes that the following recommendations would be relevant and workable in South Africa.

6.1 Implementation at National Level:

- 6.1.1** Through a Cabinet decision, obtain political backing and support for climate change interventions and move towards a national greener budget.
- 6.1.2** Set up a multi-disciplinary national steering committee comprising representatives from COGTA, SALGA, Eskom, CEF and various Provincial and Local Government representatives with the objective of sharing the learning experience of Energy Efficiency and Alternative Sources of Energy (French Best Practice) to the mutual advantage of Municipalities, Eskom and the citizens of SA.
- 6.1.3** Legislate the triple bottom line reporting methodology for all organizations using public funds, being accountable to the citizenry for sustainability of the economy, society and the environment.
- 6.1.4** Review all national legislation and policies to align to energy efficiencies and encourage waste minimization and implementation of alternate sources of energy, balancing policies to address South African circumstances, i.e. balancing electronic processes with the job creation strategy; reviewing waste to energy strategies before using food sources or land suitable for growing food as bio-fuel conversion grounds, etc.
- 6.1.5** Review current fiscal priorities and revenue raising strategies to ensure the climate change agenda is addressed.
- 6.1.6** Drive out large scale lean-carbon programmes at national, provincial and local levels.
- 6.1.7** Develop energy efficient integrated transport plan with all spheres of government; standardizing integrated electronic fare management systems and various aspects of each mode of transport.
- 6.1.8** South Africa should be committed to reducing reliance on coal generated energy and capitalize on solar and wind to diversify the energy mix.

- 6.1.9 Support energy efficient programmes through harnessing carbon credits for the implementing institution.
- 6.1.10 Set national building standards for energy efficiency, certifying green buildings and providing incentives for minimizing the kilowatt hours per square meter of the building.
- 6.1.11 Implement mandatory certification of new buildings following an energy audit when selling or renting a building.
- 6.1.12 Encourage the recycling of waste through amending the national Supply Chain Regulations to award preferential points for green procurements.
- 6.1.13 Consider the impact of introducing tax penalties on high energy consuming vehicles and aids for efficient vehicles in order to reduce carbon emissions.
- 6.1.14 SARS should consider providing vat deductions on products that encourage energy efficiencies and tax deduction to industries that implement initiatives to reduce energy consumption.
- 6.1.15 Expand the FTSE/JSE SRI Index, which serves as a tool for investors to identify companies incorporating sustainability practices into their business activities, to all companies and allow SCM points to be awarded to tenderers that utilize systems with higher sustainability and lower risk to the environment.

6.2 Implementation at Provincial Level:

- 6.2.1 Provinces should establish multidisciplinary task teams that will consider individual and provincial conditions to determine realistic plans and projects as well as achievable targets, setting key performance indicators and monitoring implementation.
- 6.2.2 Economies of scale should be promoted across municipal boundaries for implementing on a provincial level.
- 6.2.3 Best practices should be shared between municipalities in a province and between provinces on a national level.

6.3 Implementation at Local Government Level:

- 6.3.1** Municipalities should each develop their own policies to define and guide their activities in order to protect, enhance and invest in the long term wellbeing of society, the economy and the environment. These policies should align to national initiatives and will ensure achievement of provincial targets.
- 6.3.2** Political support for prioritization of energy efficiencies and low carbon emission projects should be obtained to ensure funds follow functions.
- 6.3.3** By-laws and policies should be amended to ensure energy efficiencies and discourage use of private vehicles, incentivise private initiatives to reduce energy usage and promote growth along public transport corridors.
- 6.3.4** In order for an integrated approach to work, a dedicated **monitoring mechanism** should be developed that will, amongst others, monitor progress made on budget commitments and renewable energy savings programmes as indicated in the integrated sector plans in the IDP.
- 6.3.5** Legislative support needs to be provided to encourage and support local employment initiatives and to manage waste and minimize waste to landfills.
- 6.3.6** A **consolidated initiative** should be undertaken by all municipalities to market and promote energy efficiencies with all stakeholders.
- 6.3.7** Municipalities should set up platform to engage and debate these issues with the relevant stakeholders.
- 6.3.8** The system of retrofitting needs to be aligned to the specific energy challenges in the South African context where, for example, heating of buildings is not the highest consumer of energy as in the case of Paris. The retrofitting should therefore focus on water heating, air conditioning and other high energy consumers.
- 6.3.9** The Canola plant which is found in abundance in Western Cape (SA) is used in Grenoble (France) to produce bio-fuel for busses. These facts emphasise that through **energy efficiency initiatives and “green living” opportunity exists in SA.**
- 6.3.10** It is evident throughout the Energy Efficiency in the EU Report that energy efficiency initiatives, policies, systems, strategies, incentives and penalties are in place to reduce carbon emissions and reverse some of the effects of global warming.

CONCLUSION

Aimed at **sustainable development** the implementation of the above mentioned initiatives at national, provincial and local government levels will result both in immediate benefits and in long term benefits for the future of humanity. Moving towards a “**green economy**” would result in health and financial advantages for any citizenry. As is the case of China, Brazil and France energy efficient solutions provide immediate economic benefits through job creation opportunities. China is the world’s largest manufacturer of wind turbines and solar panels, having created over a million jobs in the green economy. Similarly, Brazil through its bio fuel industry has employed 500 000 people and France is expected to create more than half a million jobs through its greening initiatives. Given **South Africa’s natural resources** our country is perfectly placed **to lead with regard to solar energy, wind farms and wave energy** projects especially if there is a demonstration of political will and commensurate financial investment.



Delegates from South Africa meeting with French ADEME and French suppliers

7. INDIVIDUAL IMPRESSIONS OF THE TOUR BY THE DELEGATES

7.1 Louise Muller – Director Shareholding Finance -City of Cape Town Metro



This municipal study tour has given me insights into some fantastic developments that are taking place in France - definitely a first world country. While France has its own challenges, I was interested to see the stretch targets implemented to deal with climate change and the passion of those involved to ensure these targets are met. It is clear that once a matter has been prioritised in France, the political support ensures that funding follows to ensure this mandate is met. The large variety of activities implemented in order to meet climate change targets ranging from the reduction in waste to landfill sites, production of bio-gas, running of buses on natural gas, centralising heating and cooling mechanisms for private companies in the City centre as well as the targeted retrofit programmes for both public and privately owned buildings is impressive. These initiatives have opened my eyes to the extent to which some programmes can be taken.

In France all services seem to be working well and all appear to be well maintained: the streets were clean with mechanised street sweepers and cleaners; the traffic lights all worked; the metro, bus and train services were clean and on time; rubbish collected quickly and efficiently; many buildings showed energy efficiency measure had been implemented and lights only switched on when one entered the room, etc. I found the French people to be serious about what they have to do, fairly introverted, but very disciplined and professional in all their interactions. I appreciated being able to interact on various different aspects with so many different role-players.

I do believe this was a life changing experience that will constantly impact the way I look at the environment around me, helping me to evaluate how I can make changes within my areas of influence that will have a lasting effect. I feel most incredibly privileged to have had this truly

amazing experience; a special thank you to those who saw potential in me and afforded me this opportunity.

7.2 Henry Prins -Municipal Manager: West Coast District Municipality



An intensive, compact, and interesting program that compelled the group to co-operate effectively to ensure the outcomes of the project was rewarding. The success of the tour was reliant on the dynamics of the group because of the packed program. I am of the opinion that the group succeeded in achieving the objectives and that relationships were forged that would live on for a long time.

My experience is that Paris is not a very tourist friendly city. In general all signs are only in French which is a limiting aspect to tourists. As France markets itself as a premier tourist destination, it may be necessary to be more acceptable to a language that is commonly used universally. However, the country has indeed retained and preserved its rich cultural heritage and history which create an identity for the nation.

The infrastructure is well-maintained and the cities are clean. Basic services seem to work well. The transport system is very efficient, user-friendly, reliable and safe, however highly subsidized,

The policy framework is embedded in public structures and the implementation supports global trends. France's implementation of energy efficiency measures is excellent with groundbreaking initiatives that make it a leader with new technology.

The public sector relies substantially on public-private-partnerships to deliver quality services. These partnerships take various forms and levels of ownership.

The country appears to have an efficient and effective system of tax collection being one of the main sources of income for different services. I am of the opinion that the citizenry accepts their responsibility towards the state in paying their taxes.

The French public sector seems to be a preferred employer and the sector attracts highly skilled employees.

In conclusion I want to express my sincere gratitude to INCA, in particular the leadership of Noel Jelliman, the delegates and our hosts for a very rewarding opportunity.

7.3 Stephen N Jacobs – Chief Finance Officer – Theewaterskloof Local Municipality



Time: The timing of the Tour was perfect in terms of the Municipal Calendar. The period of the tour was however very short, long days and long distance travelling was very taxing. This had an impact on the available time for completing the report and reading additional information acquired.

Accommodation: Accommodation was excellent, except that no facility was available for meetings and working on the report as a team. We however improvised.

Traveling & Logistics: Excellent. Diverse and effective transport system is great (Bus, Tram and Rail).

Receptions: We had warm receptions at all places visited, for which I am grateful.

Leisure and Site-Seeing: The great work of art and architecture, so well preserved and maintained was impressive and mind-boggling and proved that with limited resources, the will, and a positive attitude you can accomplish a lot and leave a legacy. The people involved in the planning, design and construction of the buildings, works of art, and landmarks in an era where technology was limited or non existent proves a point or two.

French Culture: In general not very friendly and language is a serious barrier. Restaurant service was generally below expectations. Lunch hours are too long.

Relevance of Subjects/Themes/Learning Experience: I learned a lot, got a different perspective and approach to doing things and I am anxious to start some of the interventions/innovations.

The themes and subjects were appropriate although some innovations/interventions will not reach the top of the SA Municipal Service Delivery and Infrastructure Agenda (IDP and Budget).

Provision of Basic Services such as Water, Electricity, Sewer, Solid Waste, Roads are Primary/Basic Service Delivery Needs and high priorities in a third world compared to the Secondary Agenda of first world European Countries.

The Main Objective of Metro Rail, Trams, Bus Services and Full Waste Management Initiatives in France and other parts of Europe is to counter Global Warming by Reduce Carbon Emission and Environmental Preservation. These services are not conducted as Trading Services (for profit/surplus) or Economic Services (breaking even) and cannot be afforded at this point in time in SA but should certainly appear in the Long-term Plans. Before the introduction of Trams and expansion of Rail Travelling are considered the issues regarding our current systems should be adequately addressed. Here I am referring to inter alia the Taxi Industry, safety, affordability, reliability and frequency of the existing services. It will serve no purpose to bite more than we can chew.

General/Overall Comments: It was indeed a successful Study Tour. The level of success will however ultimately be determined thereof successful implementation of at least one project.

Conclusion: I would like to thank the Board and Management of INCA for the opportunity and privilege to be part of a successful Study Tour. I also convey a special word of thanks to Mr. Noël Jelliman for his patience, meticulous preparation and sacrifice to ensure a successful Study Tour.

7.4 Khomotso L Maponya – Treasurer - City of Johannesburg



The France study tour was an invaluable experience with the focus on current issues covering international best practice on alternative energy sources, transport system and waste treatment technology. The engagements in all the meetings imparted invaluable knowledge to the delegates and will definitely assist in formulating plans for our respective municipalities. The Summer School also assists in networking and information sharing between municipalities.

On a lighter note, I fell in love with Paris as a City, but Grenoble was just another experience out of this world for me, even the miserable weather could not dampen my spirit. I just loved how the tram system fit into the look, feel and planning of the City.

To INCA, sponsors, coordinators and hosts the initiative is noble and the contribution made in capacity development in South African municipalities is really appreciated.

To the class of 2010 you guys were great team and thank you for your professionalism.

To Noel Jelliman thank you for your guidance throughout the programme and keeping everyone focused. This was a trip worth taking!!!!!!

7.5 Bharthie Ranchoddas – Corporate Executive, Accounting - eThekweni Municipality



France is an awesome country, very rich in culture, wealth and heritage. The city is characterised by its historical buildings and distinctive French architecture which is impressive and clean. The French have over the years maintained and preserved the architecture of the buildings by making them heritage and or tourist sites thereby attracting thousands of tourists on a daily basis.

Most French people speak French as their first language thereby fostering France's culture. For tourist, the language barrier makes it difficult to communicate and appears to make the French people seem very unfriendly.

Generally, it appears that French people enjoy good wine, fashion clothing, perfumes and bags and love shopping. This is very evident by the busy stores and shopping malls. To maintain a healthy lifestyle, many French people walk and or ride bicycles. I guess this is why there are not many overweight French people.

The infrastructure especially the trains are similar to other European cities and would rate equally in terms of efficiencies and timeliness to German precision. The French people are encouraged to travel by train /bicycle /trams/buses etc to work due to a concerted effort by the French government to reduce carbon emissions from vehicles.

The government's focus on energy efficiencies and environmentally friendly cities is clearly demonstrated by the implementation of their policies to achieve short and long term sustainability. Local government together with the private sector are working together to come up with initiatives

to achieve the targets set by the French Government. I was certainly impressed by the multi-functional purpose of Grenoble's buildings.

This was my first business experience and trip to France and I could not have asked for a better organized, enriching and carefully thought out programme. I feel privileged to have traveled with a multi-cultural and diversified group of officials and a mayor from Local Government, sharing the same passion and desire to achieve the objectives of the tour. I sincerely hope that the relationships we built would be retained and that as a group we stand as a voice for our Government for change.

Finally, the energy efficiency, recycling, and climate protection programmes that we explored at the various municipalities were certainly an eye opener to me, and I am convinced that the lessons learnt can be replicated in our country.

In conclusion, I would like to thank Noël Jelliman and our translators for making this an enjoyable and memorable trip.

7.6 Lerato Thwane's : Chief Finance officer - Hibiscus Coast Local Municipality



The study tour to France was very beneficial to me personally and to the team as a whole. The subjects of Energy Efficiency and Transport are of outmost importance to our country and particularly municipalities. There was a lot to learn and being exposed to the innovations of the French municipalities just opened one's mind to the endless opportunities to improve the way we do business in order to always maximise output.

Our municipalities with all the competing needs need that extra innovation and although transport is not currently a priority in my medium sized municipality, the lessons on the integration of energy

efficiency to all other municipal services is a fundamental one to me. I particularly liked Grenoble Metropole's project on the integrated housing because it displays efficiency at all levels, the community integration (different classes), entertainment, facilities, energy efficiency, water efficiency and ultimately financial efficiency. This is a model that can certainly be applied to our projects locally.

INCA Capacity Building Fund from the summer school, arrangements for the tour and the actual tour handled themselves and the teams with outmost professionalism, the expectations were always communicated upfront, which was great for me and there were no surprises. I would like to commend Noel and his team for a job well done and to also thank them for the invaluable opportunity to be part of the team.

The rest of the team, we networked and created a bond, I am grateful to each one for we also learnt a lot from each other as we shared our experiences.

The French culture, beautiful cities and their pride in preserving their history are also outstanding. I enjoyed the food, wine, interacting with the people, whom I found to be quite friendly contrary to perception.

France Study Tour 2010 was therefore a great success.

7.7 Linkie Mohlala : Mayor Emakhazeni Local Municipality



The Study Tour exposed me to the way of life of the citizens of the first world countries. They strive towards maximum utilization of the space and the resources whilst at the same time, protecting the irreplaceable natural environment. Rich as they are, they ensure that resources are wisely utilized to ensure that they last for a long time.

What impressed me most is their integrated planning of projects. The National Government and the Municipalities work hand in hand to ensure that projects are completed on time and resources are effectively directed to a specific project at a time. Even though France is so huge, the communities enjoy development in all areas outside Paris, due to the sampling criteria that ensure that all localities are developed. This means that development is not skewed to the rich Cities like Paris.

The capacity of the Councilors, especially the Municipal Mayors humbled me. These Councilors speak with authority in their areas of expertise. They guide, through debates, the technocrats on issues of development. Most importantly, they placed inhabitants (community) consultation very high in their priorities. To them it is important to hear what the inhabitants say for the developments are community driven. It was really touching to hear the Mayor says that even though it was difficult, he consult his inhabitants four (4) times a year. Since the areas are large, the community representatives are consulted instead.

What worried me throughout the tour though was the length at which the French Government has gone in creating an artificial living space by replacing the natural ventilation by cold water conditioning in all the buildings. I feel that at a long run such a positive initiative today might have detrimental effects to the health of the inhabitants, especially their lungs. I therefore thank INCA, the French Embassy, FNB and all the sponsors, for identifying me to be part of the team. I have learnt a lot in leadership from all the delegates and the coordinators in such a way that, I am a changed person.

Ukwanda kwaliwa ngumthakathi

8. MESSAGE FROM DELEGATION LEADER, INTERPRETERS / TOUR GUIDES / OFFICIALS

8.1. Local Government Capacity Building Study Tour France 2010

Perspective by Noël Jelliman (Delegation Leader)



The primary focus of this year's study tour has centered on energy efficiency, which we believe was most appropriate given the current energy generation capacity shortage evident in South Africa. This annual pilgrimage to Paris has certainly been a highlight for many municipal elected and administrative officials over the years, and I sincerely hope that the experience has not been different for the 2010 delegates.

I appeal to each delegate to share and disseminate the information gained in France with their colleagues back in South Africa. The Inca Capacity Building Board of Directors wish all the delegates the very best for the future, and trust that you will contribute significantly towards the re-shaping and turnaround of Local Government in the years to come.

Thank you for all your co-operation during the tour and your efforts in ensuring the timeous completion of the Study Tour Report.

Aurevoir

Noël

8.2 Messages from Interpreters [In their own words]

Sandra Rossini Laweut Godineau, Samy Labeyrie, Alexandre Naud

Thanks a lot to the entire INCA Study tour group. It was really a pleasure for all of us to meet you and show you how municipalities in France treat with sustainable developments. The South African group was really interested in the issues of energy efficiencies and it was way for us in EXPLICIT to

know more about the problems and challenges experienced in South African municipalities in implementing some of the innovations. For us it was a pleasure to speak in English and share our French experience.

Alexandra ALLARD aallard@explicit.fr

That was a real pleasure to get to meet you after a couple of months of talks about the Big South African Delegation Tour in Paris and France! We have been looking forward to lead you through some of the innovative operations in France Municipalities and to get to measure South Africa's issues concerning the energy sector.

All the best for your coming projects!- Alexandre

Anne APIC odica@afd.fr

It was very nice being with the all South African team, amidst the cold; it reminded me of my years in your beautiful country. I will see you again next time in SA.

Thank you very much.- Anne

Alexandre Naud anavd@explicit.fr

It was a pleasure to meet you, and an honor to receive you in France. I really appreciate to show you my country after leaving and enjoying 8 months in South Africa.

You are always welcome.- Alexandre Naud (+33)666713455

9. ACKNOWLEDGEMENTS

The delegates of the Study Tour: France wish to extend their sincere appreciation and gratitude to the following persons, all of whom contributed to the success of both the Summer School and the Study Tour to France :-

- **The Boards of the INCA and the INCA Capacity Building Fund**, for their moral and financial support which ensured the success of the Summer School as well as the Study Tour to France.
- **The French Embassy and the French Consulate** for their assistance with the issuing of the delegates' VISAS
- **Bernard Malauzat and Jean-Pierre Gay of the French Embassy**, for their continued support in making the Summer School possible.
- **First National Bank Corporate**, for their major financial support of the Summer School during October 2009.
- **Monsieur Rioust de Largentaye of AFD** and those who accompanied the delegates on most of the visits and whose contributions made the itinerary one to remember.
- **The Directors and Management of Explicit for organizing, planning and arranging the topic to be reviewed during this tour.**
- **Sandra Rossini, Laweut Godineau, Samy Labeyrie and Alexandra Naud from Explicit**, for their assistance in the facilitation and translation from French to English and *vice versa*, of the various sessions.
- **The taxi drivers**, for their logistical support, and generally for making our stay in France an absolute pleasure.
- **Nicolette Botha** (Portfolio Manager) for her assistance and co-operation in formatting and assisting with the compilation of the report.
- **Noël Jelliman (Delegation Leader)** Our sincere thanks and appreciation go to our delegation leader Noël Jelliman who handled the group in a professional way and who played a significant part in the success and well being of all the delegates on the study tour.

10. GLOSSARY OF ABBREVIATIONS

Metropole: Metropolitan municipality in France that has jurisdiction over a city centre and a number of smaller municipalities within a particular region – similar to a District Municipality in South African terms :

Abbreviation	Description
BRT	Bus Rapid Transport
CVO	Centre de Valorisation Organique
GWh	Giga Watt hours
GHG	Green House Gas
HEQ	High Environmental Quality
ISO	Organisation Setting International Standards
KWh	Kilo Watt hours
PPP	Public Private Partnership
RFP	Request for Proposals
LED	Light emitting diode
CO ₂	Carbon Dioxide
UTP	Urban Transport Plan
SALGA	South African Local Government Association
NGO	Non Government Organisation
Afd	Agence Française de Développement
IDP	Integrated Development Plan

11. ADDITIONAL PHOTOGRAPHS



The Famous Basilica



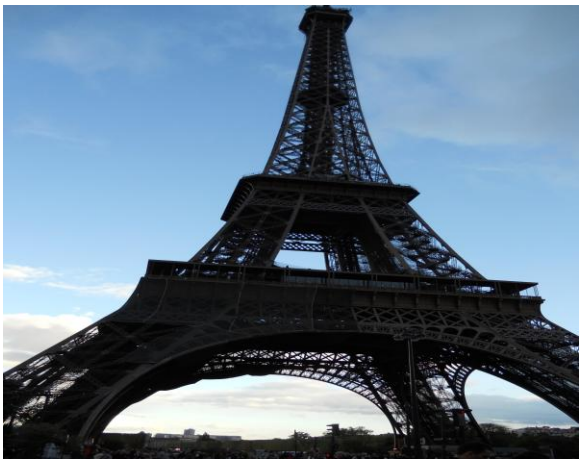
Arch Of Paris



From left: Louise, Bharthie, Khmotso, Lerato, Nicolette with Linkie at the Art district



At the station –amazed with the ticketing system



The famous Eiffel Tower



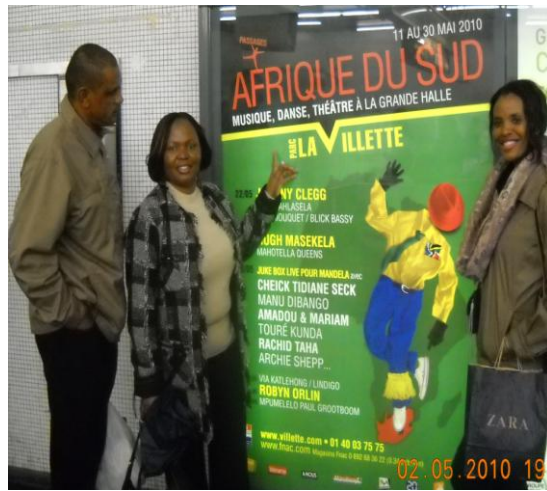
Seine River – view from the Eiffel Tower attempts to make a greener city



Champaign on the top of the Eiffel Tower



Parisians awaiting entrance to Louis Vuton Sale not affordable to us .



Mayor and delegates proud to see this poster in the underground Station



An early morning start to Lille Metropole





In the auditorium – Discussion on Transport policy



Dressed to visit the Waste Disposal Plant



Transport of waste to Belgium



Municipal depot for refueling of natural gas



Paris retaining the exterior architecture of its buildings but ensuring compliance on energy efficiency initiatives. NB: Its clean and spotless streets



Delegate's shivering at temp of less than 12 °



Enjoying a scrumptious Meal at an "Indien Restaurant"



Creating awareness amongst children through Participation in school projects schemes



Model of the award winning design on an environmentally and energy efficient housing schemes



Climespace control centre - monitors all the buildings It services from a central point



Chillers used for cooling the water



South African Engineering students seconded to France



Team building over cup of coffee



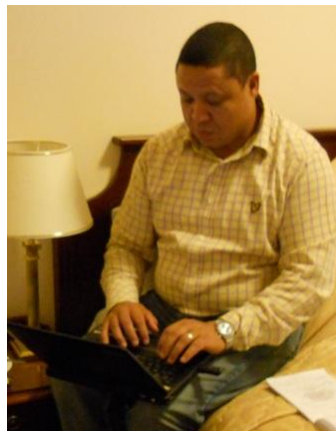
Noel getting an appreciation for the operation Climespace



Testing the bicycles - rented by Velepole



On top - appreciating the view



Stephen and Henry working on their reports in one room whilst the ladies team up to finalise their sections of the report



Meeting with UBI France and ADEME



At Afd offices in Paris – proudly SA



On Board cruise around the River Seine

Nicolette, Khomotso and Lerato



Louise, Stephen and Bharthie



On board – sharing a joke at the closing dinner



Feeling relaxed at the end of the day



*Railway station converted to
Le muse d'Orsay*



Linstitut de France



Team working to drafting the report



*Thanking Noel for his facilitation
and saying goodbye*



Ladies enjoying shopping for perfumes at French Boutique



*Henry assisting in sorting the luggage
at the airport*