FRENCH NATIONAL RESEARCH PROGRAM ON URBAN FREIGHT:

Transports de Marchandises en Ville

TO LEARN & TO UNDERSTAND,
TO BUILT UP METHODOLOGIES FOR DECISION MAKERS
AND TO HELP TO CARRY OUT APPLICATION
URBAN FREIGHT DELIVERY RESEARCH PROGRAM

LAUNCHED IN 1993 BY:

TRANSPORTS

EDF
ELECTRICITE DE FRANCE

JOUX ELECTRIQUES

JOINED AFTERWARD BY:

ADEME

GART

PREDIT 1996-2000
MAIN OBJECTIVES

TO ALLOWS LOCAL AUTHORITES TO TAKE INTO ACCOUNT LOGISTICS AND DELIVERIES IN THE GLOBAL URBAN MANAGEMENT AND TRAFFIC

BUILDING OF A DATA BASE USED AS A REFERENCE FOR PUBLICS & PRIVATES STAKEHOLDERS THINKINGS AND EXCHANGES ON THE QUESTION OF URBAN LOGISTICS & DELIVERIES

METHODOLOGIES & FUNDING FOR INNOVATIVE EXPERIMENTATIONS
WHY DEVELOP A RESEARCH PROGRAM ON URBAN FREIGHT?
ENVIRONMENTAL BALANCE OF TRANSPORT OVERCOME BY URBAN SHARE

FRANCE 1997

CO (Kt)

NOx (Kt)

PARTICULATES (Kt)

CO2 (Mt)

Source DAEI/SESADME/ impact COPERT 1998

AIR & TRANSPORTS DIRECTION
INDICATIVE BREAKDOWN OF URBAN TRANSPORTS ENERGY CONSUMPTION ACCORDING TO THE USE OF THE VEHICLE

- 53% for cars
- 18% for trucks
- 7% for motorcycles
- 7% for buses
- 1% for vans
- 10% for taxis
- 3% for bicycles

1997
URBAN TRANSPORTS POLLUTION: WHAT RESPONSABILITIES FOR WHAT USE?

1997

- CO
- NMVOC
- NOx
- Particulates

Source: DAEI/SESADME/impact COPERT 1998
TRANSPORTS OF URBAN WASTE:
MORE THAN 70 MILLIONS TONS /YEAR

- WASTE FROM LOCAL AUTHORITIES: 22.5
- HOUSEHOLD WASTE: 29.5
- HOUSING RESTORATION: 11.4
- DEMOLITION: 10.2
- BUILDING: 2.3

Source: ADEME 1993

1993
FREIGHT VEHICLES:
EMISSIONS IN URBAN TRAFFIC

1997 vehicle stock; speed 30 km/h

Source: ADEME/IMPACT
PUBLIC SPACE CONSUMPTION FOR URBAN DELIVERY
FOR SEVERAL USUAL LOADING CASES

Source Ademe / IMPACT 1997
EFFECTS OF URBAN SPRAWL: HOUSEHOLD SUPPLY EXAMPLE

SCENARIO 1: SUBURB HYPERMARKET

10 km
1 time 30 kg

SCENARIO 2: VICINITY SUPERMARKET

10 km
500 m
5 times
6 kg

SCENARIO 3: SCENARIO 2 WITH AT HOME DELIVERY

By LDV ROUNDTrip
8 customers
30 kg/customer

Source: Ademe 1997
AN APPALLING EFFECT ON ENERGY / EMISSIONS BALANCE

SCENARIO 1: SUBURB HYPERMARKET

- CO\textsuperscript{2}: 251 koe
- Pollutants: 773 kg
- Noise: 12,300 m\textsuperscript{2}.h
- Pollutants: 29 kg
- Noise: ~10 cars

SCENARIO 2: VICINITY SUPERMARKET

- CO\textsuperscript{2}: 4 koe
- Pollutants: 12,6 kg
- Noise: 760 m\textsuperscript{2}.h
- Pollutants: 0,3 kg
- Noise: ~10 cars

SCENARIO 3: SCENARIO 2 WITH AT HOME DELIVERY

- CO\textsuperscript{2}: 19 koe
- Pollutants: 60 kg
- Noise: 1305 m\textsuperscript{2}.h
- Pollutants: 2,2 kg
- Noise: ~35 cars

Source Ademe / IMPACT 1997
PARALLEL OR ROUNTRIP DELIVERIES?

SCENARIO 1: PARALLEL DELIVERIES

10 km

SCENARIO 2: ROUNTRIP DELIVERIES

10 km

12 x 500 kg

5 km

6 tons

Source: Ademe 1997
A NEGATIVE EFFECT ON ENERGY / EMISSIONS BALANCE

SCENARIO 1: PARALLEL DELIVERIES

- **CO₂**
  - 21.7 koe
  - 67.9 kg

- **Pollutants**
  - 1972 m².h
  - 1.1 kg

- **Noise**
  - ~12 cars

SCENARIO 2: ROUNDTRIP DELIVERIES

- **CO₂**
  - 6 koe
  - 18.8 kg

- **Pollutants**
  - 717 m².h
  - 0.4 kg

- **Noise**
  - ~10 cars

Source: Ademe / IMPACT 1997
Transports de Marchandises en Ville

RESULTS
BORDEAUX 1995
BREAKDOWN OF URBAN FREIGHT TRANSPORT

54%
37%
0.1%
0.2%
0.3%
1.2%
2.8%
4.4%

Source: LET
BORDEAUX 1995

ENERGY / EMISSIONS BALANCE FOR H.D.V.

EXCEPT GOODS TRAFFIC BY PRIVATE CARS
H.D.V. & TRANSIT TRAFFIC INCLUDED

ENERGY
CO2
CO
VOC
NOx
SO2
PM

Source: ARIA pour ADEME / EDF
BORDEAUX 1995
EMISSIONS BREAKDOWN
ACCORDING TO THE TYPE OF VEHICLES

PM
SO²
VOC
NOx
CO²
CO

Source  ARIA pour ADEME / EDF

TRANSIT AHEAD !
ROAD TRAFFIC IN BORDEAUX: SHARE OF GOODS TRAFFIC

VEHICLE . KILOMETERS

morning peak hour

average

evening peak hour

0  500.000  1.000.000  1.500.000
ONE HOUR’S TRAFFIC

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SHARE OF GOODS TRAFFIC

VEHICLE . KILOMETERS

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ONE HOUR’S TRAFFIC

ROAD TRAFFIC IN BORDEAUX:
SHARE OF GOODS TRAFFIC

VEHICLE . KILOMETERS

morning peak hour

average

evening peak hour

0  500.000  1.000.000  1.500.000
ONE HOUR’S TRAFFIC
ENERGY BALANCE FOR TRANSPORTS IN BORDEAUX: SHARE OF GOODS TRAFFIC

- **Morning peak hour**: 53 TEP/hour (Cars: 37, Goods: 12)
- **Average**: 37 TEP/hour (Cars: 9, Goods: 28)
- **Evening peak hour**: 105 TEP/hour (Cars: 12, Goods: 93)
TRANSPORTS POLLUTION IN BORDEAUX: INFLUENCE OF THE METEOROLOGICAL SITUATION

MAXIMUM CONCENTRATIONS AT MORNING PEAK HOUR

- **NOx**
  - Frequent: Blue
  - Unfavorable: Yellow

- **CO**
  - Frequent: Blue
  - Unfavorable: Yellow

- **NMVOC**
  - Frequent: Blue
  - Unfavorable: Yellow

- **PM**
  - Frequent: Blue
  - Unfavorable: Yellow

THE MOST FREQUENT SITUATION: WEST WIND 5m/s
UNFAVORABLE SITUATION: WEAK WIND & TURBULENCE
GEATER PARIS 1995
ENERGY BALANCE / HDV EMISSIONS

EXCEPT L.D.V. AND FREIGHT TRAFFIC BY PRIVATE CARS
H.D.V. TRANSIT INCLUDED

Source ISIS pour ADEME / EDF 1997
GREATER PARIS 1995

NOx EMISSIONS FOR H.D.V.

BLACK & RED AXES ARE THE MOST POLLUTED

IMPACT OF TRANSIT TRAFFIC

Source ISIS pour ADEME / EDF 1997
RESEARCH SYNTHESIS
USING RESEARCH RESULTS TO DEVELOP METHODOLOGICAL GUIDES AND TOOLS FOR DECISION MAKERS
A NEW LEGAL FRAMEWORK FOR URBAN TRANSPORT: THE CLEAN AIR & ENERGY MANAGEMENT ACT

URBAN TRANSPORT FRAMEWORK

ART. 14:
FRAMEWORK FOR PASSENGERS & GOODS

- CUTTING DOWN TRAFFIC
- DEVELOPMENT OF PUBLIC TRANSPORT,CYCLING & WALKING
- BETTER ALLOCATION OF LANES TO THE DIFFERENTS MODES
- REDUCTION OF THE IMPACT OF URBAN FREIGHT TRANSPORT
- CAR POOLING IN PRIVATE COMPANIES

COMPLUSORY FOR AGGLOMERATIONS > 100 000 INHAB.

TOWARD AN UNIQUE AUTHORITY TO PLAN URBAN TRAFFIC OF GOODS & PASSENGERS
ASSESSMENTS FOR LOCAL AUTHORITIES
FUNDING NEW EXPERIMENTS: AN EXAMPLE

URBAN DELIVERY PLATEFORM

ELCIDIS LA ROCHELLE

COMMUNAUTE D’AGGLOMERATION TRANSPORTS GENTY

AND:
Rotterdam
Stockholm
Erlangen
La Louvière
Stavanger
Région Lombardie

700 m², 6 Portails; 6 E.V.s

OBJECTIVE: 600 parcels /day;

REALISATION 61%
AS A MATTER OF CONCLUSION

Transports de Marchandises en Ville
FROM PREDIT 2 TOWARDS PREDIT 3

MAIN FEATURES

- TMV : urban freight program
- ELU : urban logistic platforms
- economy & logistics
- environment & reverse logistics
- urban logistics
- goods safety
- specialized clean vehicles
- tools for public policies