Supported by:

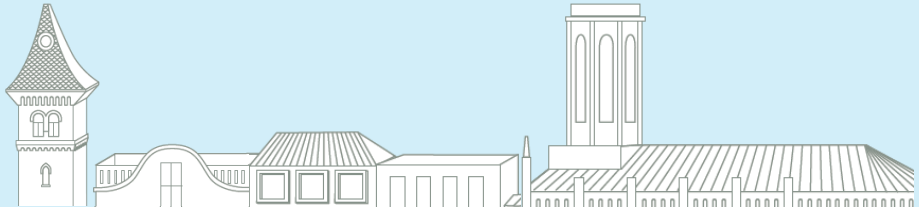
Agència de Residus de Catalunya

Diputació Barcelona

AMB Àrea Metropolitana de Barcelona

Day to day management of door to door at Tiana

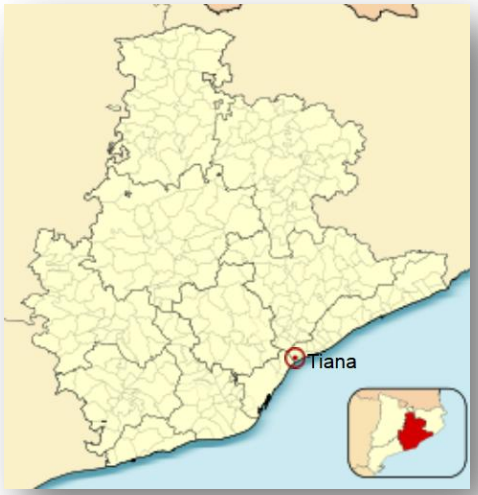
Monitoring, problem solving, coordination with citizens and government team



Ajuntament de Tiana

TIANA MEDI AMBIENT

Tiana

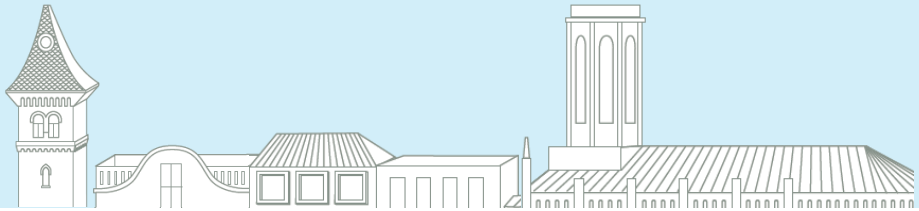


Comarca	Maresme
City	Tiana
Surface	7,9 km^2
Population (Idescat, 2015)	8.411

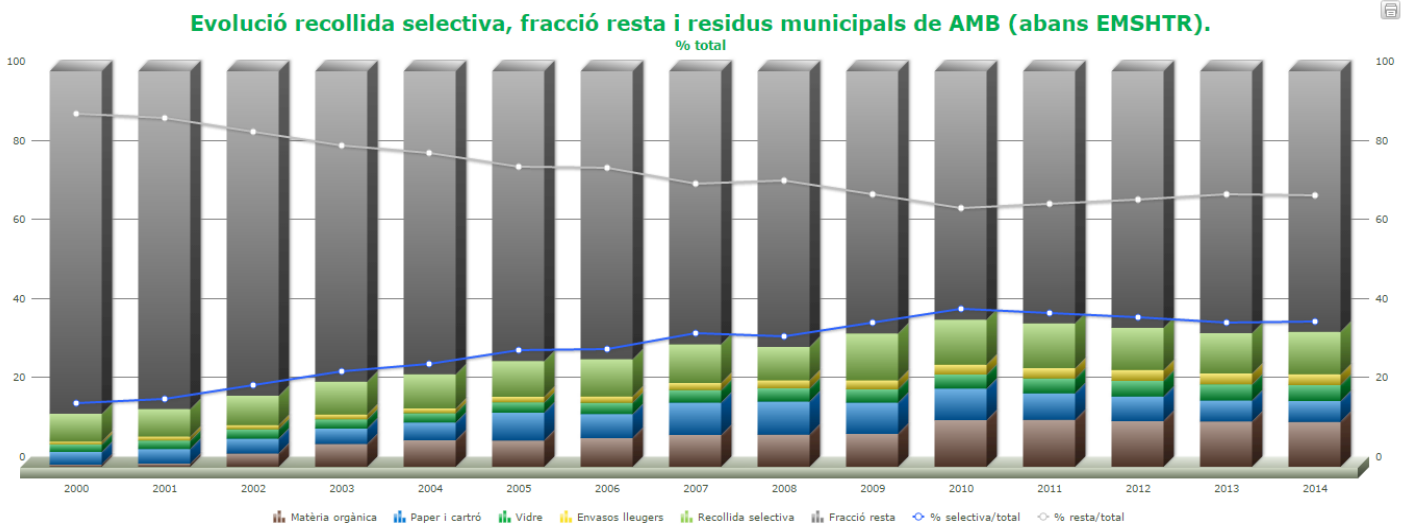
Ajuntament de Tiana

TIANA MEDI AMBIENT

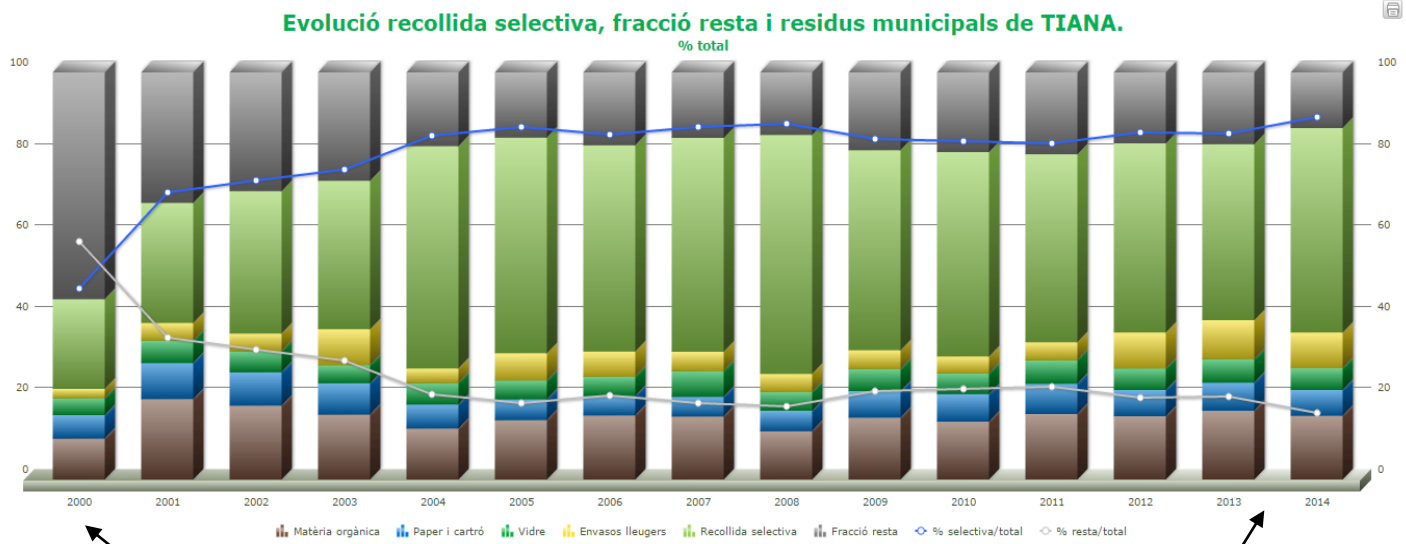
Data Waste ARC 2014



AMB



TIANA



Implementation of *door to door* collection

Campaign implementation of technology

Ajuntament de Tiana

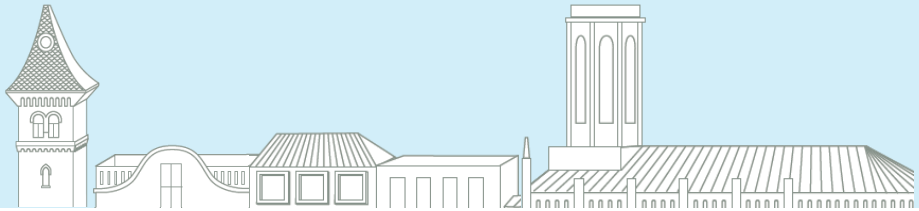
TIANA MEDI AMBIENT

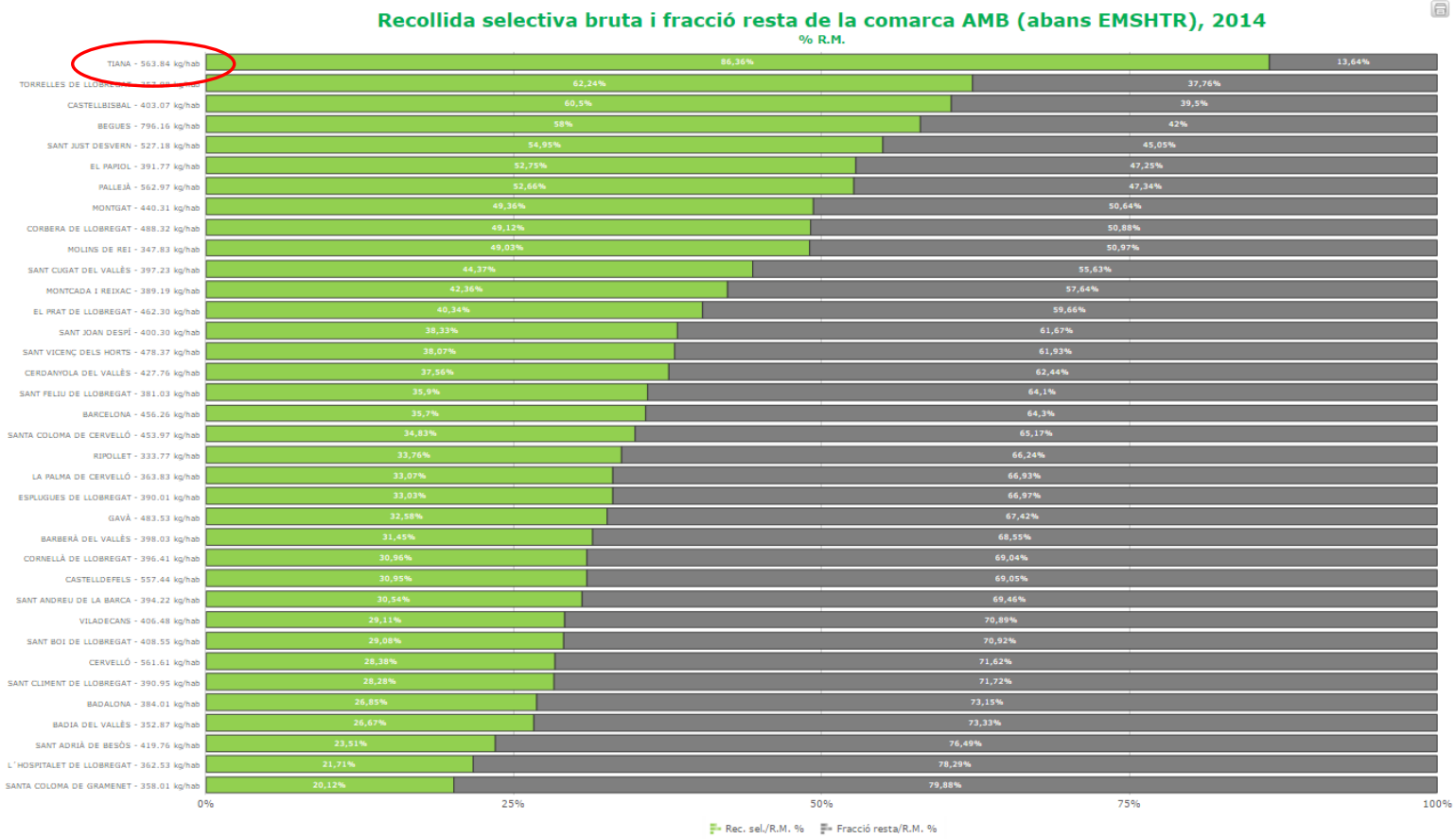
Data Waste ARC 2014

	SELECTIVA	FRACCIÓ RESTA
AMB	34,12%	65,88%
Catalunya	38,35%	61,65%
Tiana	86,36%	13,64%

Comparing the AMB or average in the case of Catalonia, Tiana we noted that the figures are reversed and reach excellent results from a selective collection of 86.36% and only 13.64% of not usable fraction.

Data Waste ARC 2014



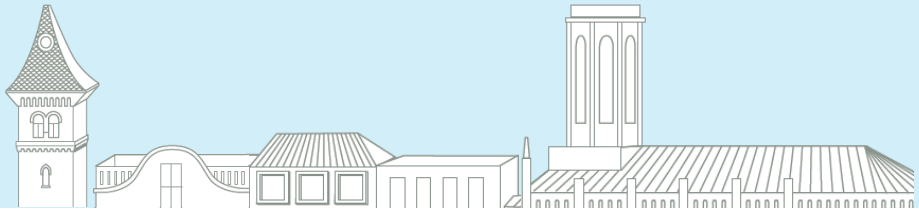


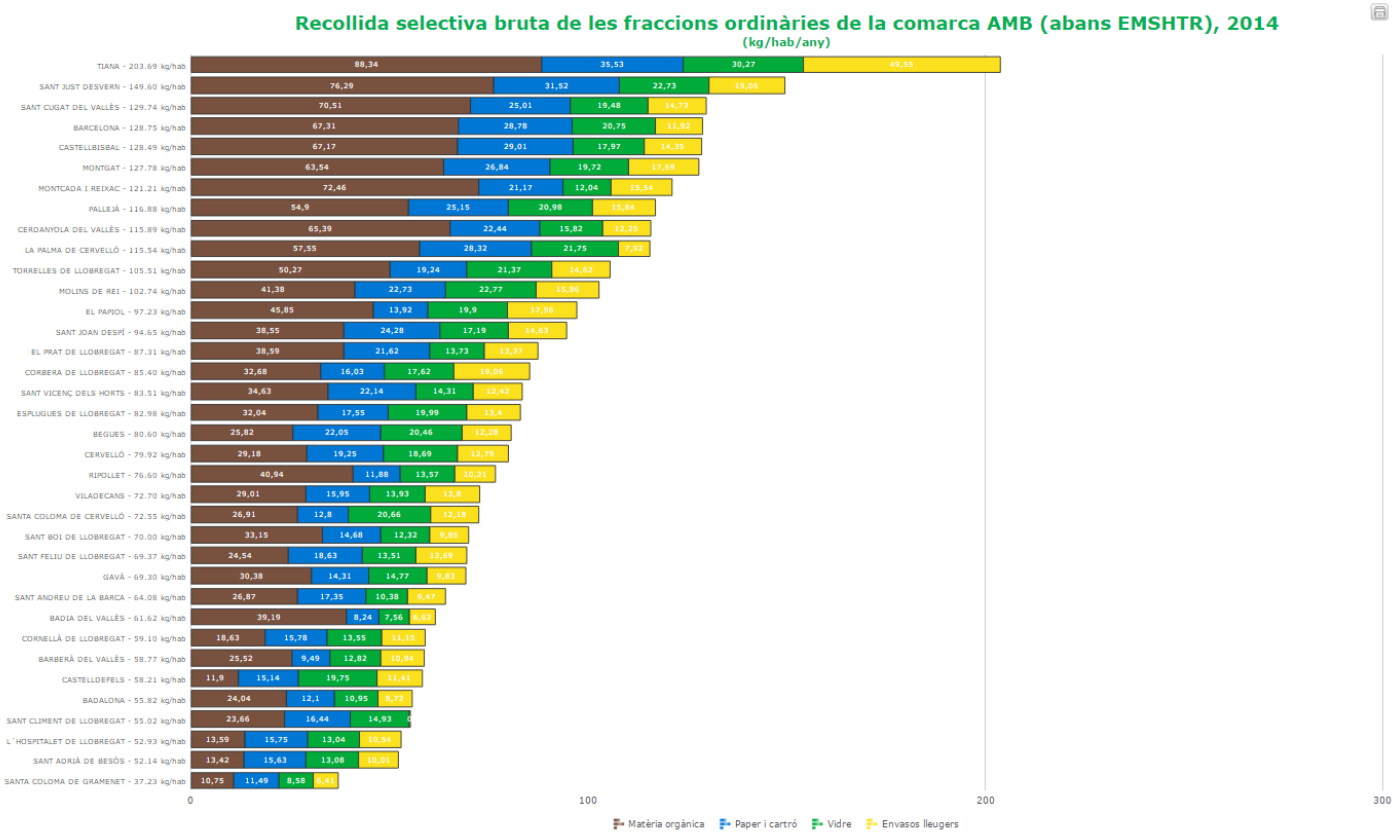
Tiana have 86,36% of selective collection, and Catalunya Only reaches to 38,35% of selective collection.

Ajuntament de Tiana

TIANA MEDI AMBIENT

Data Waste ARC 2014





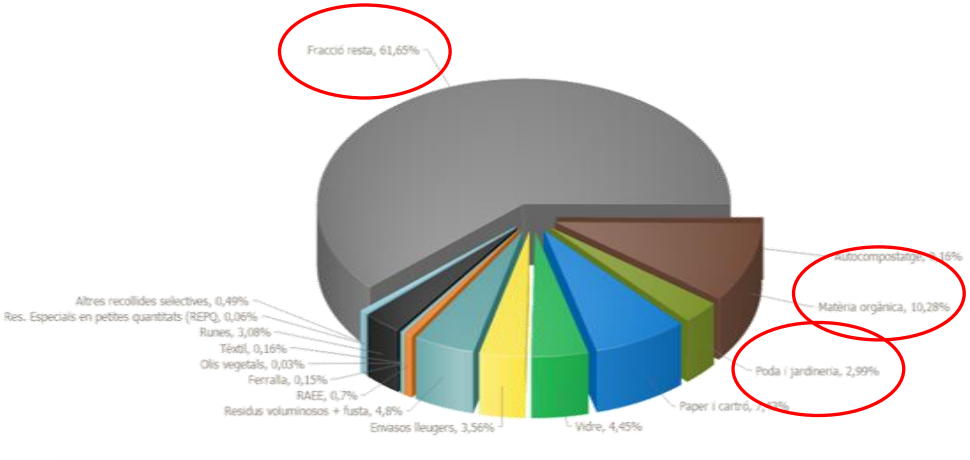
TIANA, the municipality with the best data of recycle at Metropolitan Area of Barcelona. (203,69kg / inhabitant in 2014 to 55kg / hab's of difference with the second best city)

Ajuntament de Tiana

TIANA MEDI AMBIENT

Data Waste ARC 2014

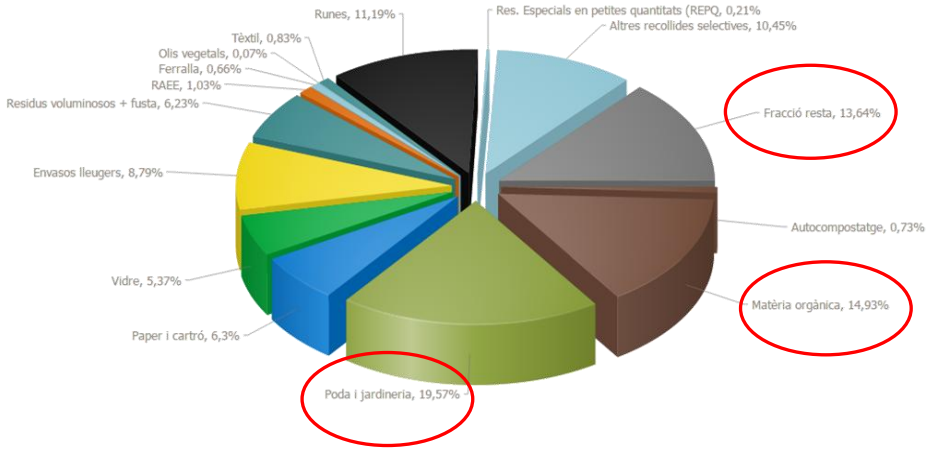
Average Catalunya



Tiana collects less than 50% of rest fraction.

Tiana collect 50% more at containers on the street and use of local recycling centre (deixalleria)

Tiana



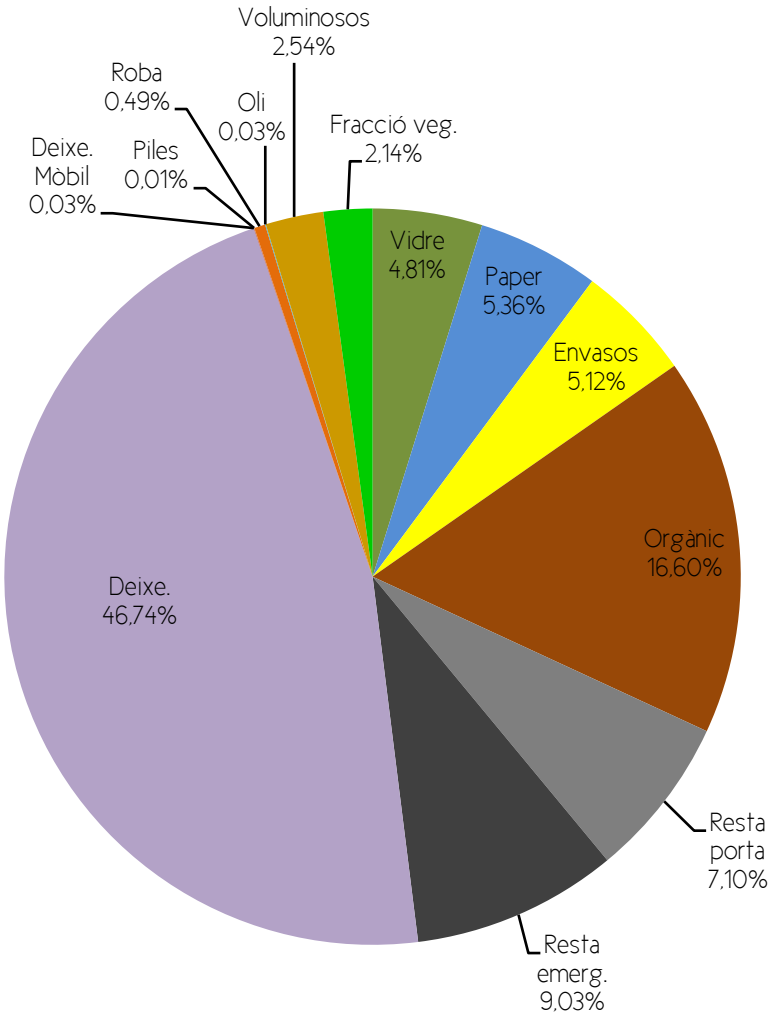
Tiana collect 16.5% more of pruning waste than the catalonia average. It's a line to work.

The collection by fractions at Tiana is much higher than the average for Catalonia, we highlight the collection of pruning waste that in Tiana represents almost 20%, organic matter 15.66% and 8.79% the packaging fraction.

Ajuntament de Tiana

TIANA MEDI AMBIENT

Data Waste TIANA 2015



% of Collected 2015

46.77% in 2015 was manage on the local recycling centre (deixalleria)

The organic fraction represents more than 16% of the total collected.

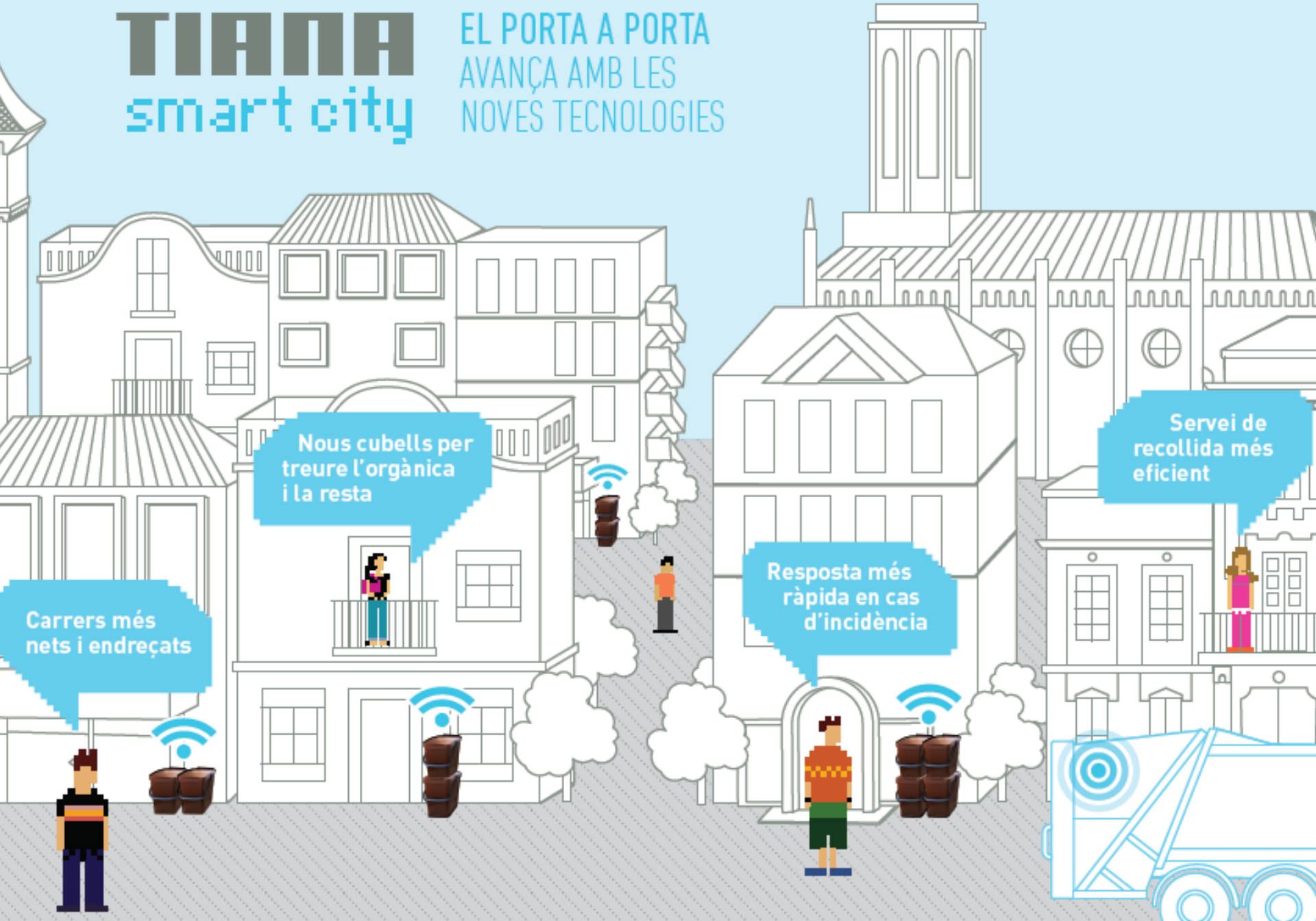
Ajuntament de Tiana

TIANA MEDI AMBIENT

Videos

TIANA smart city

EL PORTA A PORTA AVANÇA AMB LES NOVES TECNOLOGIES



WHAT WE HAVE?

The street containers

Paper · Packaging · Glass

Door to door collection

organic fraction · rest fraction (not usable)

Other services

Batteries · Clothes · Cooking Oil
Diapers
Furniture (phone call)
Shops and Business door to door collecting
Local recycling mobile centre (deixalleria mòbil)
Local recycling centre (deixalleria)

5 emergency areas (organic fraction · rest fraction)

Ajuntament de Tiana

TIANA MEDI AMBIENT

BACKGROUND

Tiana implemented the door to door collection of organic fraction and rest fraction in 2000

After years, it appears some problems associated with the model implemented:

- Saturation and **misuse of the emergency areas**.
- Increased **improper fractions** collected in container.
- Misuse of **community container and multifamily container** and **difficulty to track participation** and incidents.
- **Manual control** of citizen participation **with nocturnal monitoring** by the municipal technician.
- Manual control of the incident, which involve a very long time resolution.
- **Bad image of the street at the time of the contribution**, since there was standardization system contribution.

BACKGROUND

2013: A survey (carried 12% of the population) determines that 72% of the citizens appreciates the introduction of a tax associated to waste generation

Raised three actions:

1. Linking the contribution of all Households, including multifamily blocks.
2. Homogenization of the contribution system.
3. Implementing technologies to automate monitoring of incidents and encourage participation.

NEW MODEL OF WASTE COLLECTION

- Providing the citizens with waste bins of 20 liters for organic fraction and not usable fraction
- Adding TAGs to bins linked to the address (will not work with personal data).
- Read all bins collected via RFID.
- Automation of the issue tracking on board button linked to the reading of bins.

- Monitoring of households who make regular use of the system door to door involves minimizing waste escapes to the emergency areas and street containers.
- Incident detection and rapid action.
- Monitoring the efficiency of the collection service.
- Improving the public image, especially the non use fraction.
- Implementing a tax associated to waste generation

Increased participation MORE SELECTIVE COLLECTION / LESS improper

Ajuntament de Tiana

TIANA MEDI AMBIENT

IMPLEMENTATION CAMPAIGN

The campaign began March 29 and ended on May 27

The team consisted of three environmental educators and a coordinator

The main goal of the campaign has reported and delivered the kit to 100% of households in Tiana

1. Communication

Mailing information to all households.

2. Information point

The Delivery Kit, explanation of the operation of the new model and the data users associated with TAG.

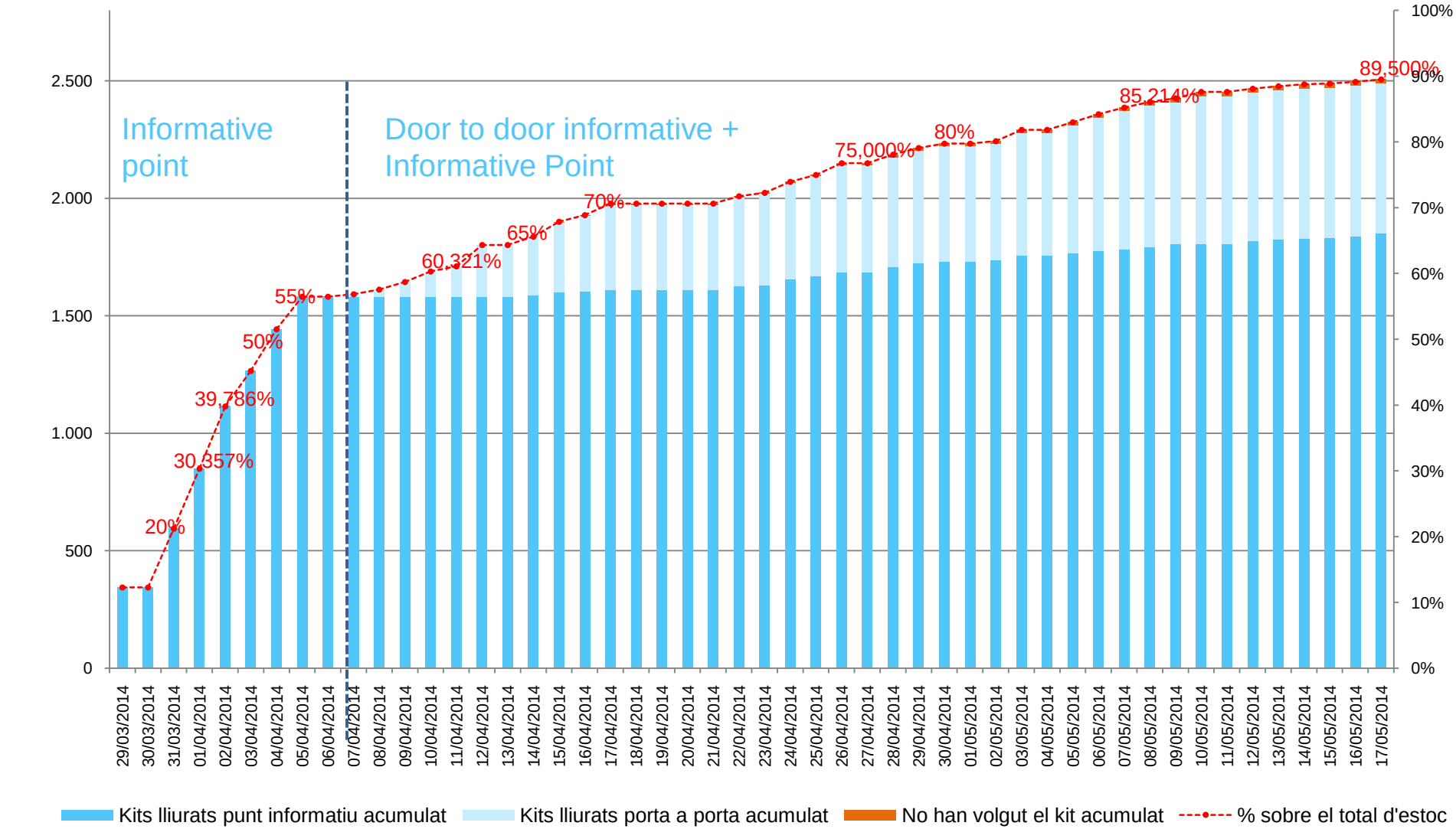
3. Door to door information

Home visits to those citizens that haven't gone to the information point. Delivery the Kit, explanation of the operation of the new model and associate the data users with TAG's. At the empty homes were hanging up posters and mailing to direct to these Citizens to the information point.

Ajuntament de Tiana

TIANA MEDI AMBIENT

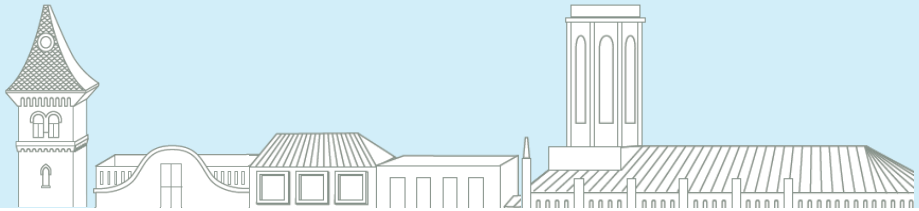
CAMPAIGN RESULTS



Ajuntament de Tiana

TIANA MEDI AMBIENT

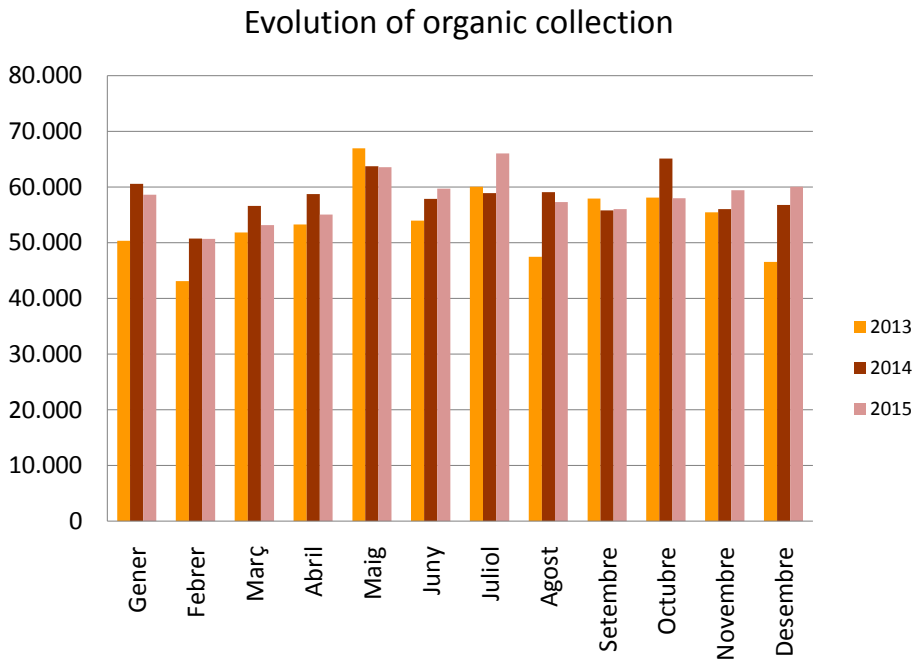
CAMPAIGN RESULTS

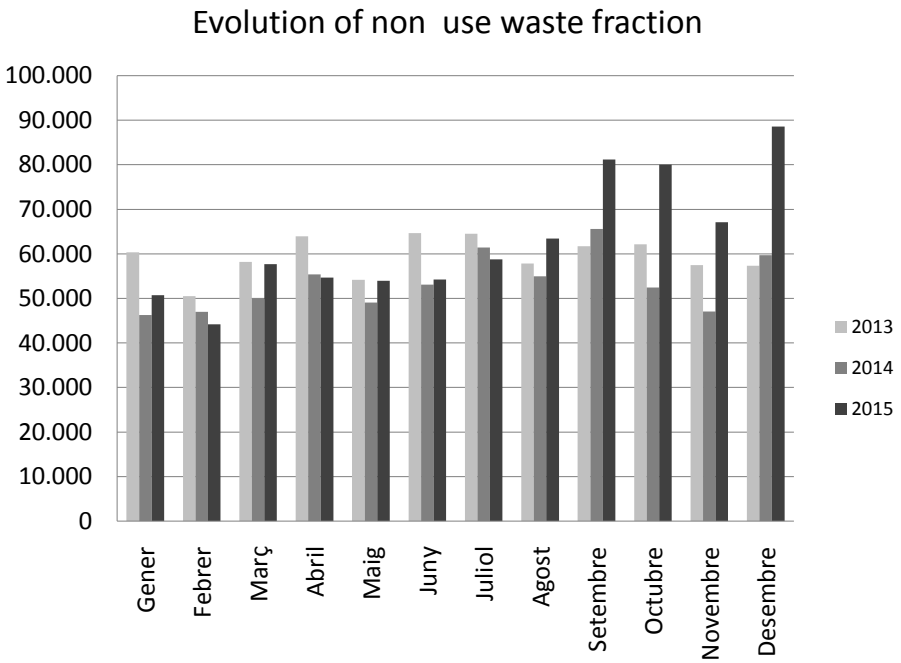


- Greater participation of residents in the door to door collection, in terms of organic fraction as the non use waste.
- Increased the number of homes participating in the door to door collection.

- Improving the image of the public zone.
- Decreased presence of abandoned bags at public zones.
- Reducing the number of waste deposited in the emergency areas, especially bags of non use waste.

COMPARISON OF RESULTS OF MONTHLY COLLECTION 2013 – 2015 (kg)





Ajuntament de Tiana

TIANA MEDI AMBIENT

TECHNOLOGY IMPLEMENTED

TAG RFID UHF

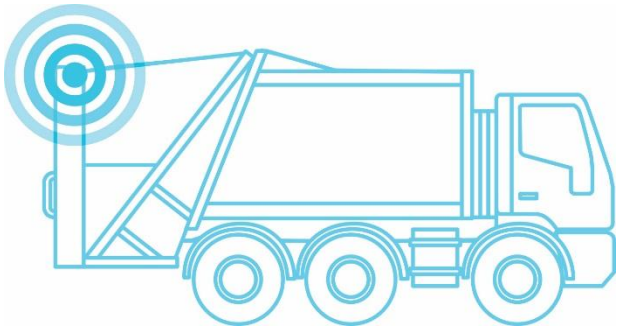
Issuer liabilities with unique code is detected by the reader reading distance.

- You can schedule delivery and assign a code identifying the waste bins and the user.
- Work with UHF (865.6 / 928.6 MHz)

DEVICES RECEIVERS on board

Antenna high frequency (UHF) via Bluetooth connection with device management or system on board.

- System multi-reading unlimited high frequency UHF Reading distance of up to 5 m and moving up to a speed of 300 km / h.
- Allows entry the incidents associated with GAD.



Data analysis. MANAGEMENT SOFTWARE

Export data in multiple formats.

Export data in GIS.

Automated and customized reports often required day, monthly, etc.

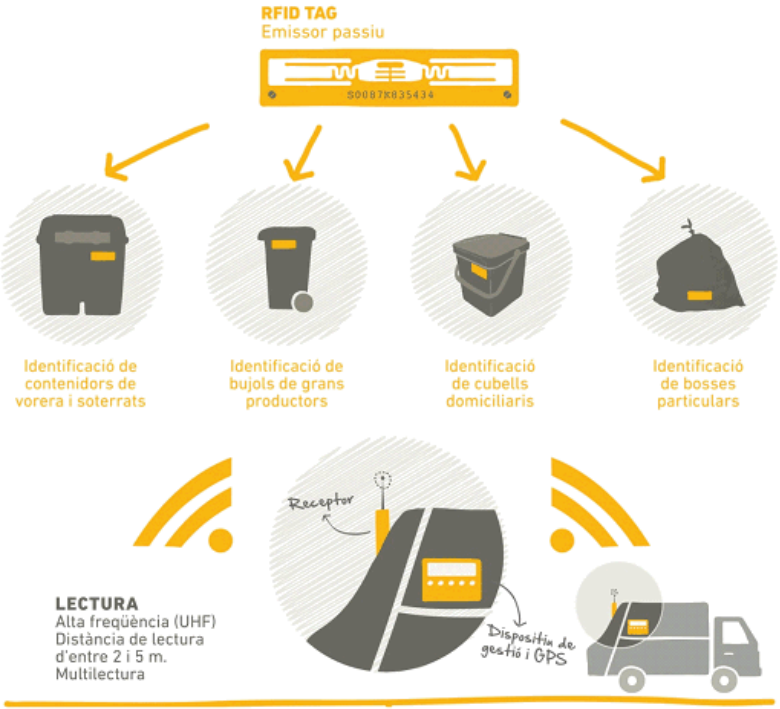
ROUTES AND STOPS INCIDENTS

OPTIMIZATION SERVICE MONITORING IMPLEMENTATION OF INTEREST INCIDENT TRACKING SYSTEMS FOR GENERATION OF PAYMENT

Ajuntament de Tiana

TIANA MEDI AMBIENT

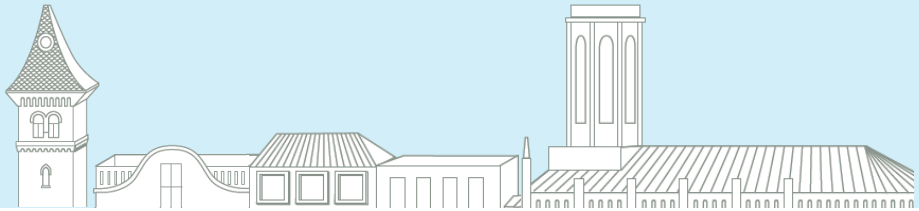
FLEET

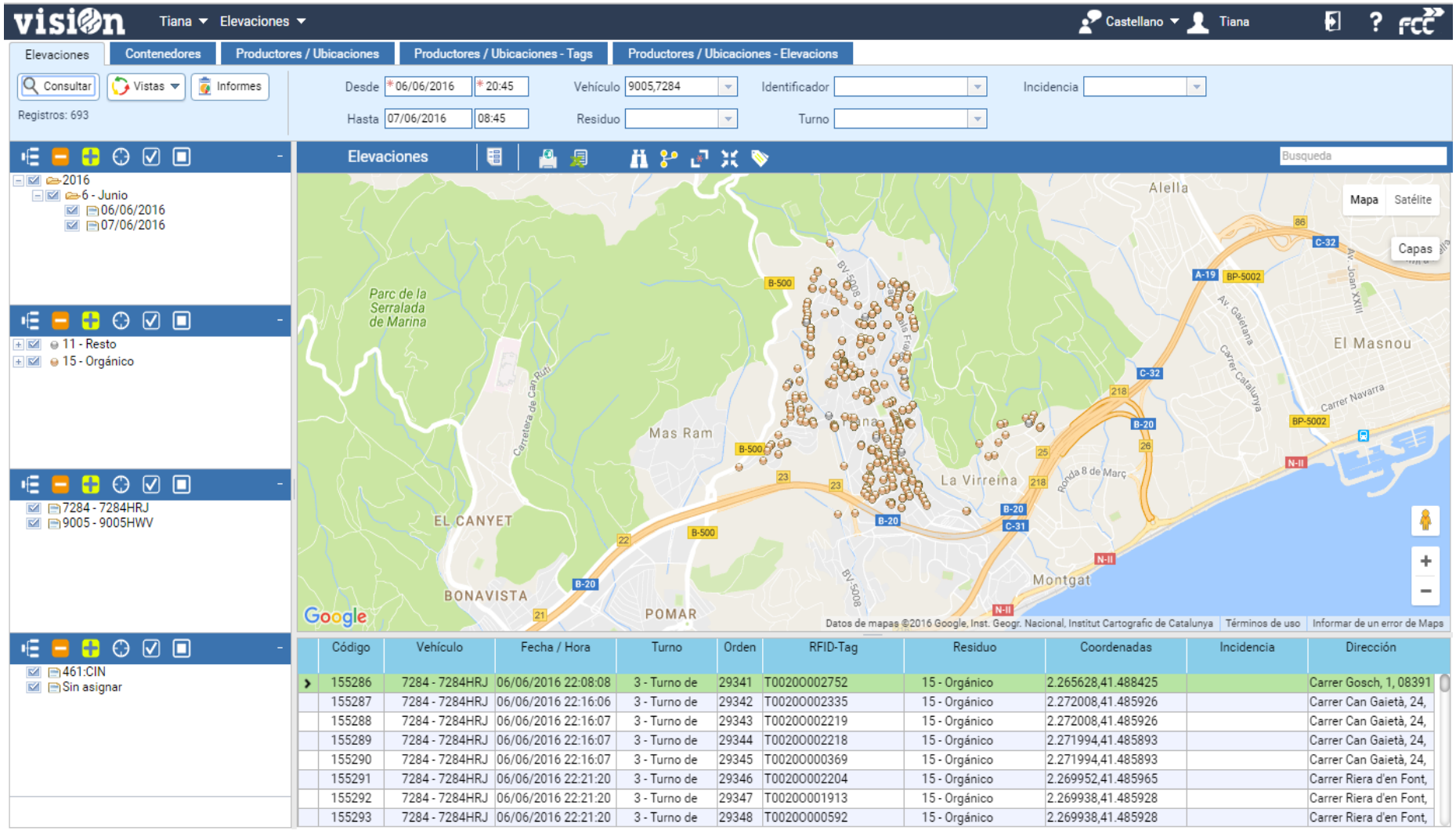


Ajuntament de Tiana

TIANA MEDI AMBIENT

PLATFORM





Código	Vehículo	Fecha / Hora	Turno	Orden	RFID-Tag	Residuo	Coordenadas	Incidencia	Dirección
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155287	7284 - 7284HRJ	06/06/2016 22:16:06	3 - Turno de	29342	T00200002335	15 - Orgánico	2.272008,41.485926		Carrer Can Gaietà, 24,
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155289	7284 - 7284HRJ	06/06/2016 22:16:07	3 - Turno de	29344	T00200002218	15 - Orgánico	2.271994,41.485893		Carrer Can Gaietà, 24,
155290	7284 - 7284HRJ	06/06/2016 22:16:07	3 - Turno de	29345	T00200000369	15 - Orgánico	2.271994,41.485893		Carrer Can Gaietà, 24,
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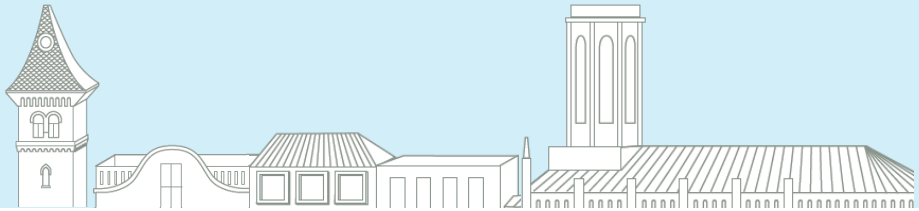
Ajuntament de Tiana

https://portal.fccma.com/fccma/

TIANA MEDI AMBIENT

PLATFORM



attend

Ticket | Històric | Coneixement | Reserves

Tècnic Antoni Tubau | Desconnectar

Nou | Plantilla | Tancar | Accions | Agrupar | Exportar | Total registres:550 | Següent

Ticket

Assignats
Pendents
Tancats
Tots
Tipología
Estat
Participats
Mapa Geolocalització

Tots	Estat	Data	Hora	Assumpte	Tipologia Ticket	Empresa	Sol.licitant	Peticionari	Grup	Tècnic	Transf.	Origen	Prioritat	Impacte	Tipus
Seleccionar Tots															
0000004674		26/07/2016	08:39	[359461] tiana@fccma.com	cubell incorrecte	FOMENTO	Estevez, Diego	Estevez, Diego	RECOLLIDA_RESIDUS	Tubau Hidalgo, Antoni			Crítica		Incidència
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Següent

Ajuntament de Tiana

TIANA MEDI AMBIENT

Remove Emergency area

Remove the five existing emergency areas during the 2017.
Converting the emergency area to emergency service located in the town center.

FUTURE CHALLENGES

Placing metal hangers for neighboring

Communities Trackability and evening meetings with neighboring communities for the placement of hangers for waste bins .

WASTE TAX

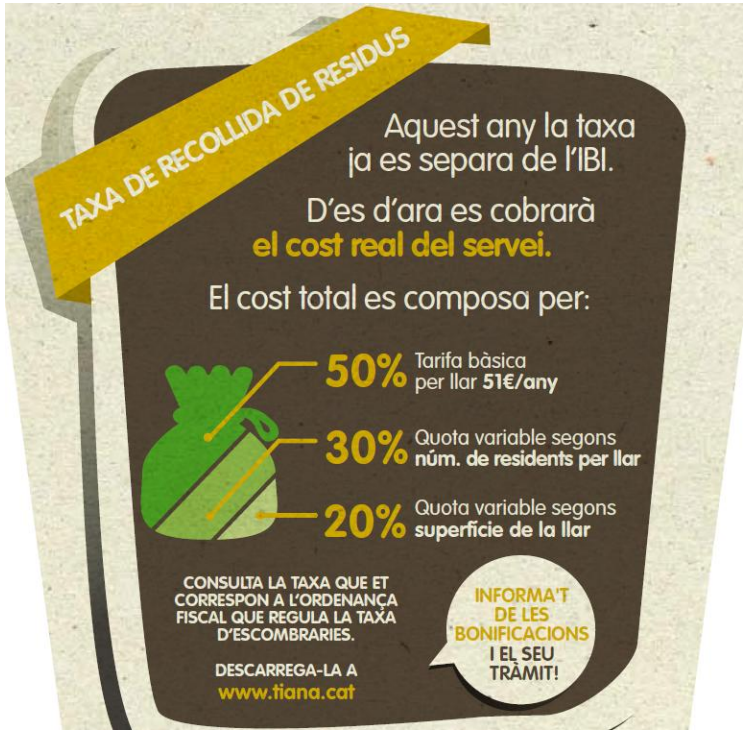
Tiana's waste tax

It consists of :

- Fixed fees (50%) 51,50€
- Variable fee depending on the number of residents for household. (50%)

It depends on two factors :

- Number of residents for household: when it increases the number of residents on a home increases the generation of waste and vice versa.
- The area of the house: It correlates with the economic capacity of the taxpayer and therefore possibly waste generation. (Also most green fraction)



ENVIRONMENTAL DEDUCTIONS

Enviromental deductions

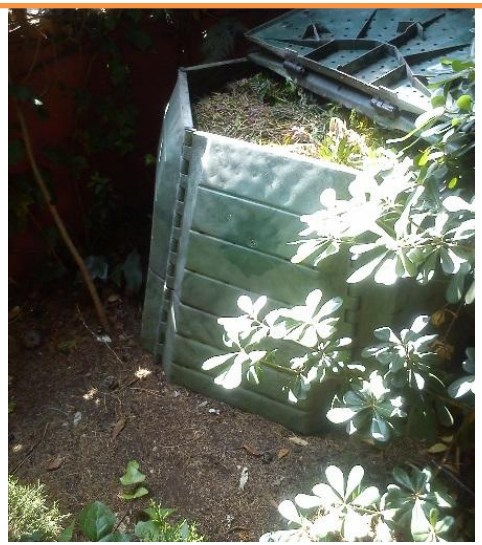
- Home Composting (10%)
- local recycling centre card

Social Rewards

- Young people (under 35 years, 25% of gross income < 15,000€)
- Pensioners 50% gross income <20.000 euros
- Social standards

Puntuació obtinguda de Renda Disponible segons Annex I del Reglament Municipal de prestacions econòmiques de caràcter social		Bonificació de la quota tributària de la taxa
Ingressos inferiors al 33,3% dels ingressos màxims mensuals	6 punts	100%
Ingressos entre el 33,4% i el 66,6% dels ingressos màxims mensuals	4 punts	75%
Ingressos entre el 66,7% i el 100% dels ingressos màxims mensuals	2 punts	50%

Tiana COMPOSTAT
Xarxa Municipal de compostatge domèstic



Ajuntament de Tiana

TIANA MEDI AMBIENT

Thanks

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