

# Cator.

The CATOR model- Catalonia



Horizon2020



## Used oil



No other liquid, toxic and hazardous waste is generated in greater quantities worldwide than used oil.



The first EU Directive implemented in 1975 already set forth strict regulations concerning used oil.

# Waste management

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**REGENERATION**



**ENERGY RECOVERY**

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## Why regenerate?

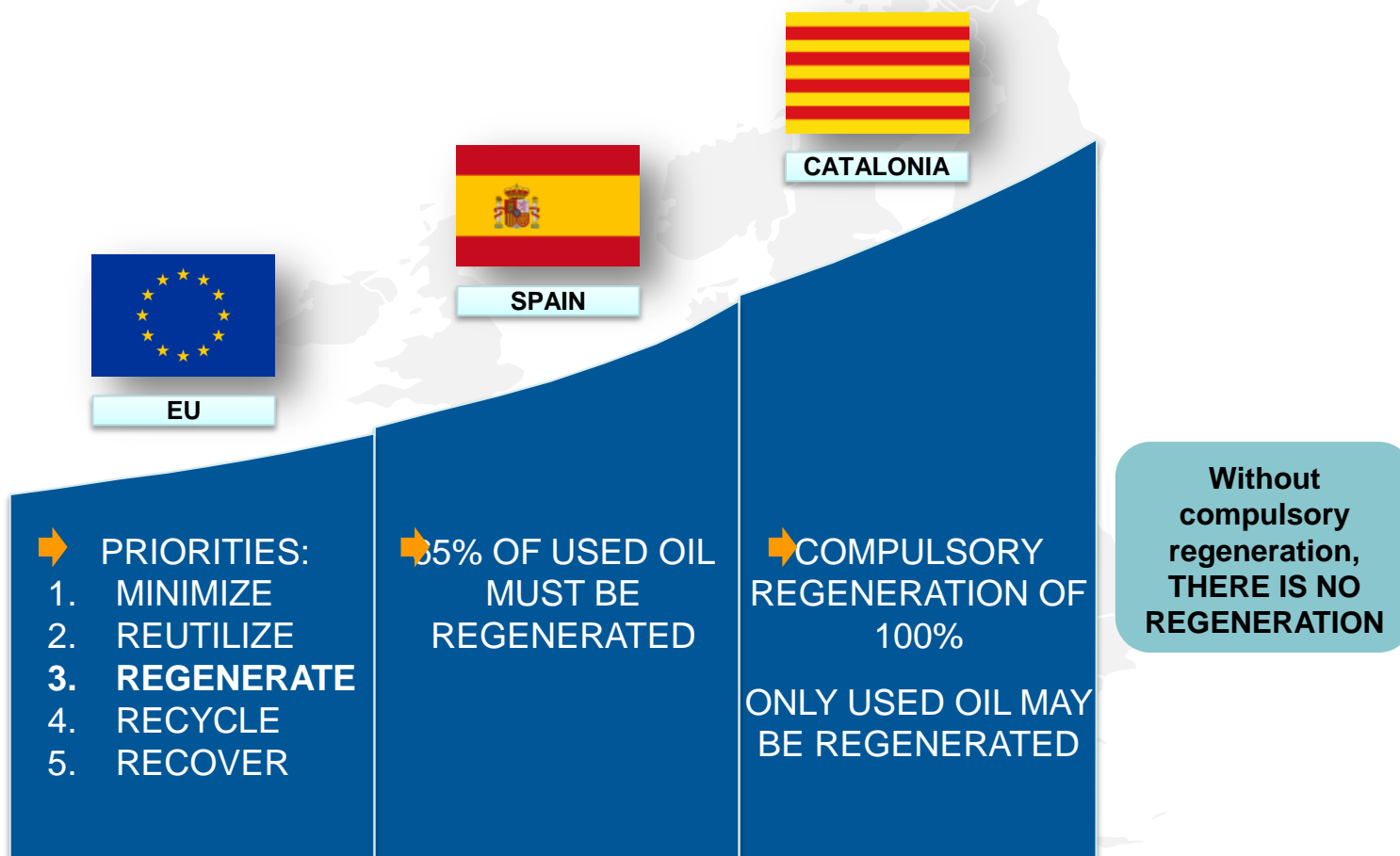
- It is the most environmentally-friendly process.
- Minimizes greenhouse effect through bypassing CO<sub>2</sub> emissions.
- Petroleum is not a renewable energy source – Responsible consumption.
- It benefits the economy of non-petroleum producing countries.
- Over 90% of used oils can be regenerated.
- Used oil can be re-refined infinitely – burning it after being put to use just once is unsustainable.
- It gives rise to a circular economy.
- The quality of regenerated oil is equal to straight refined and both may be combined whilst fully preserving quality specifications.

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## So, why is oil regeneration not the only method on a worldwide scale?

1. In spite of the environmental benefits of regenerating, the lack of controls facilitates the dumping or burning of oil.
2. Regulations need be introduced in order to establish a compulsory minimum percentage of regenerated oil.
3. Governments must ensure that said regulations are complied with.
4. Manufacturers must get involved with the processes and consumption of regenerated oils.
5. A system needs to be created to aid regeneration financially.

# Current legislation in Europe and Spain



# CATOR MODEL - Catalonia



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## Catalonia 1993

- Catalonia occupies an area of around 32.000 km<sup>2</sup> and has a population of almost 7,5 million.
- The Catalan government invites tenders in an attempt to solve the environmental issues arising from the management of used oil.
- Legislation is approved establishing that **all used oil must be collected and regenerated.**
- CATOR is awarded the tender in 1993 for the **INTEGRATED MANAGEMENT** of used oil in Catalonia.
- The **INTERGRATED MANAGEMENT** implies taking on board the entire process of used oil management – from the registration of producers, collections and regeneration, through to the trade of regenerated oil.



## Catalonia 1993 – pre-CATOR overview

	1993
Approx. Production of used oil	42,000 tonnes
Used oil collected	4,000 tonnes
Percentage collected	11%
Application of legislation	Not applied
Used oil management processes	Poor management, lack of controls, alarming rate of dumping
Used oil companies registered	None officially registered
Collectors	Many but few authorized. Black market.

## Catalonia 2013 – 20 years on

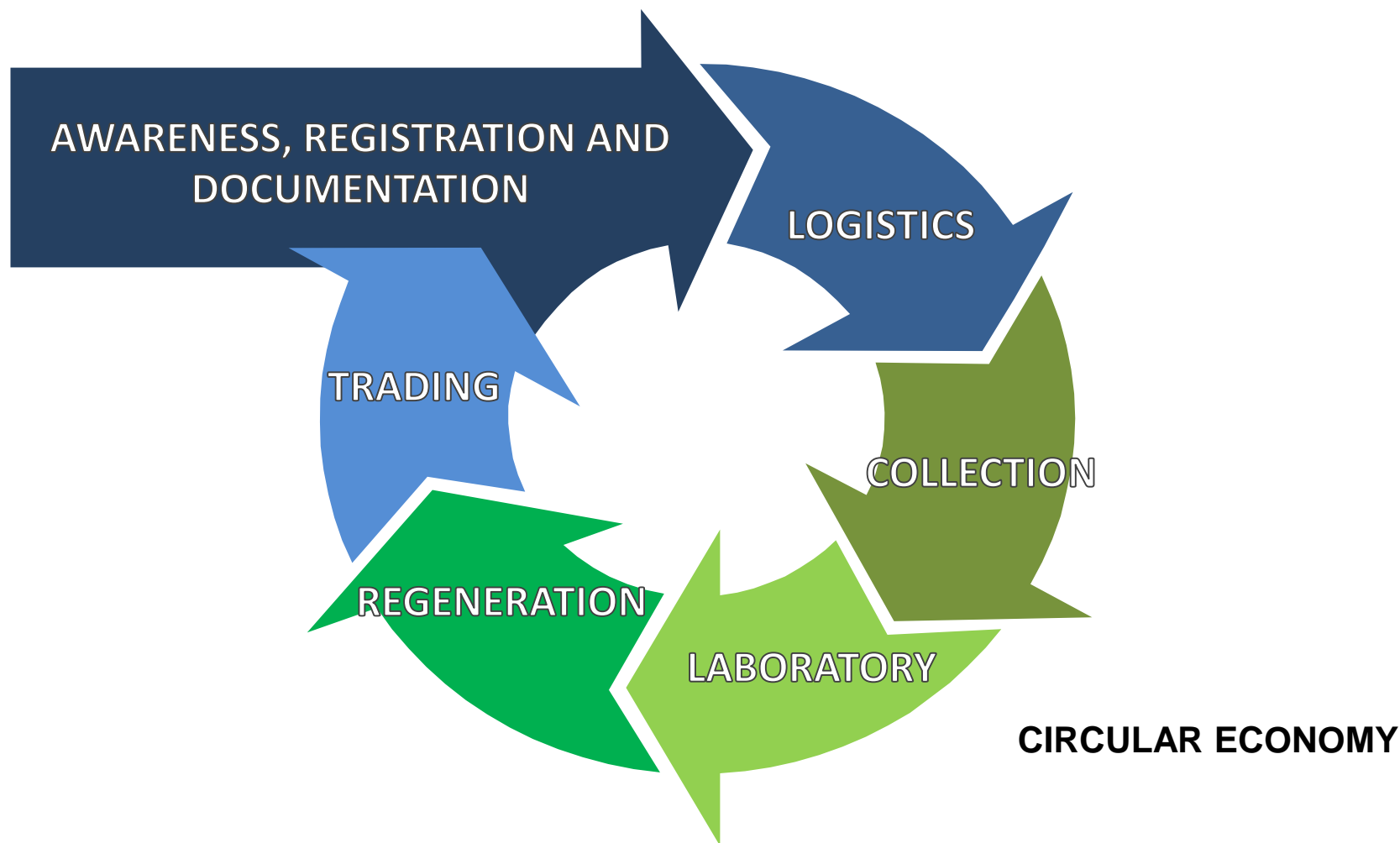
	1993	2013
Approx. Production of used oil	42,000 tonnes	25,000 tonnes
Used oil collected	4,000 tonnes	23,000 tonnes
Percentage collected	10%	92% Thanks to awareness campaigns and stringent collection controls
Application of legislation	Not applied	<b>Applied through the commitment of the regional government</b>
Used oil management processes	Poor management, lack of controls, alarming rate of dumping	<b>100% of used oil is regenerated</b>
Used oil companies registered	None officially registered	<b>All producers are officially registered</b>
Collectors	Many but few authorized. Black market.	Exclusive CATOR collections through the integration and training of existing collectors

## ¿How has this milestone of regenerating 100% of used oil been achieved?



1. Legislation states that 100% must be regenerated
2. Financial aid for regeneration management
3. Model of Integrated Management (Collection + Regeneration)
4. Collection controls (one manager for each geographic region)
5. Territory boasts sufficient volume of oil
6. Production of quality base oils

# CATOR – Integrated Management Model



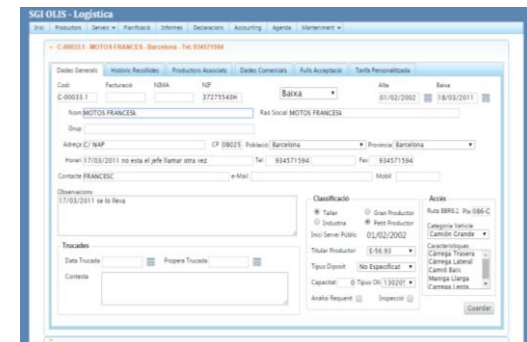
# CATOR – Awareness and training

- Awareness campaigns are carried out concerning the risks associated with poor management of used oil.
- Meetings are held with various delegations in order to convey the message of maximum effectiveness.
- An environmental training facility has been created at CATOR's plant, featuring tie-ins with schools and universities to train the younger generation.
- Placards and stickers were created both for waste management producers and regenerated oil consumer display purposes.

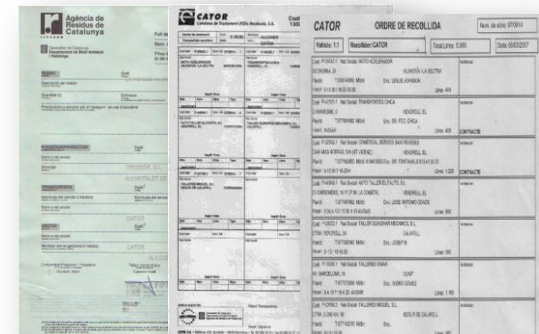


# CATOR – Registration and documentation

- A registration process of producers was implemented, classified by type (industrial/workshop, access, volume etc.)
- Registration maintenance, regular updates and monthly reports submitted to the regional government.
- Official documentation and labelling for collection control was elaborated by CATOR.



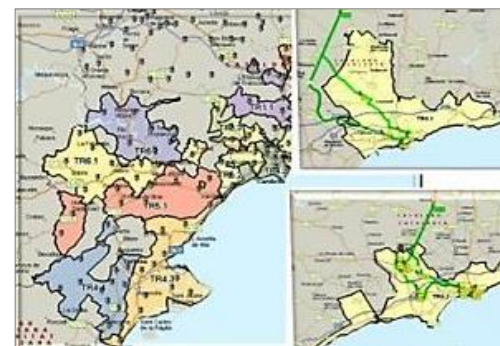
The screenshot shows the 'SGI OLIS - Logística' application window. The 'Datos Generales' tab is active, displaying a form for a producer named 'MOTOS FRANCESC'. The form includes fields for 'Codi', 'Referenci', 'NIF', 'Baixa', 'Data', 'Nom', 'Grup', 'Adreça', 'CP', 'Província', 'País', 'Tel', 'Fax', 'E-mail', and 'Observacions'. The 'Classificació' section on the right shows 'Tipus' as 'Grua Productor' and 'Activitat' as 'Auto MOTO, Pro MOTO'. The 'Tractament' section at the bottom has fields for 'Data Tractada', 'Procediment Tractada', and 'Controlada'.



The screenshot shows the 'CATOR ORDRE DE RECOLLIDA' form. It is a collection order for 'MOTOS FRANCESC' (NIF: 37275429). The form is divided into two main sections: 'ORDRE DE RECOLLIDA' and 'ORDRE DE RECOLLIDA'. The 'ORDRE DE RECOLLIDA' section contains a table with columns for 'Data', 'Tipus', 'Activitat', 'Codi', 'Descripció', 'Quantitat', 'Unitat', 'Preu', and 'Total'. The 'ORDRE DE RECOLLIDA' section contains a table with columns for 'Data', 'Tipus', 'Activitat', 'Codi', 'Descripció', 'Quantitat', 'Unitat', 'Preu', and 'Total'. The form is signed by 'MOTOS FRANCESC' and 'MOTOS FRANCESC'.

## CATOR – Logistics

- There are 16,000 collection points in Catalonia, borne out of a pressing need to map out the territory and optimize routes.
- 3 transfer centres cover the territory, each one of which was created through various routes in order to reduce latency.
- We implement our own optimization programme for routes and the adaptation of each vehicle according to the nature of the producer.
- Our logistics system enables us to know the exact amount of oil at each producer's facilities at any given moment, thus speeding up the collection process and optimizing routes.





# CATOR – Collections

- Own fleet of vehicles enabling us to collect from any type of producer. Various sizes, hoses and pumps etc.
- Transparent containers were supplied - enabling level view and thus reducing call-out time for full containers.
- Given the free nature of the service and the need to recycle, samples are taken from each collection to be analysed in order to ensure that the oil has not been adulterated or contaminated in any way.
- Advice given to producers on storage and how to prevent oil contamination.
- Collection requests via email, fax, web or phone.





# CATOR – Laboratory

- 200 samples analysed daily.
- Most common contaminants: water, chlorine and PCBs.
- Fundamental processes across the board:
  - Collection
  - Regeneration
  - End product



# CATOR – Regeneration process

- A physicochemical process was formulated based on 3 key points:
  - **Minimal waste generation**
    - Water plant
    - Salt plant
  - **Optimizing energy use**
    - Reusing water
    - Consumption of light fuels
  - **Highest quality of traded goods**
- **All elements resulting from this CATOR process are either traded (lubricants and asphalt) or reused (water and light fuels).**



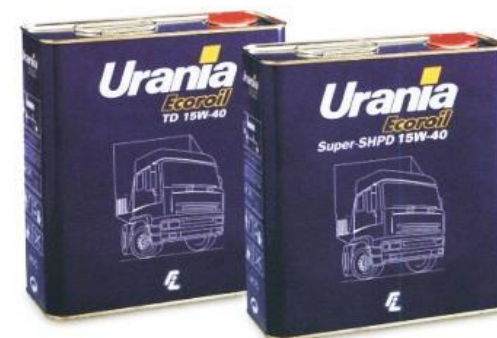
# CATOR – Trading of products

- The key to creating a sustainable model is bringing quality products to the market arising from the process.
- CATOR markets:
  - **Regenoil®**: Base agent for lubricant manufacturing.
  - **Catorex**: Multi-use asphalt product.
  - **Potassium salts**: For the production of fertilizers.

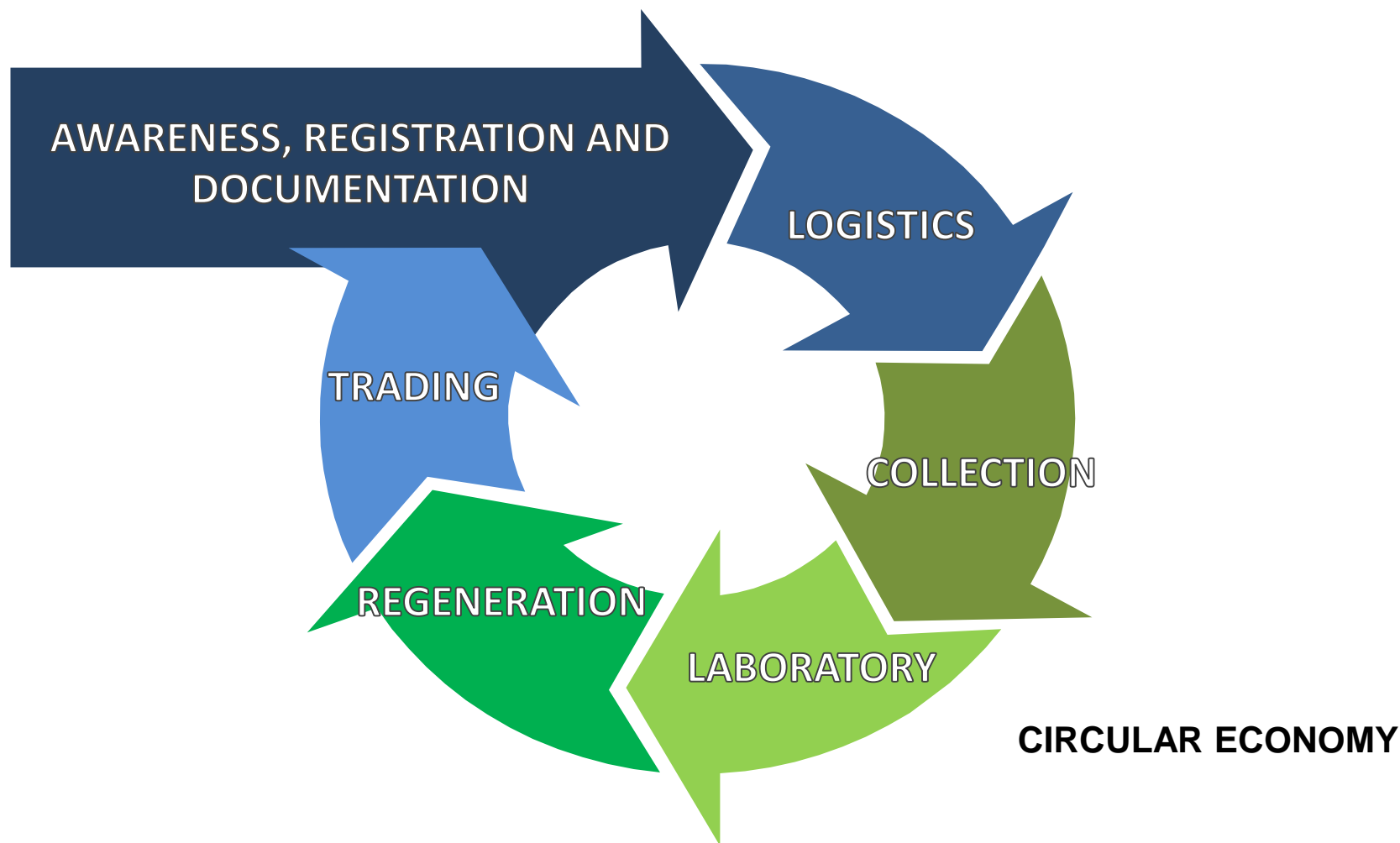


# CATOR – Quality

- CATOR's flagship regenerated oils **Regenoil®** were the first 100% regenerated products in the world to pass the stringent European (ACEA) and American (API) quality approvals.
- CATOR is fully compliant with the following certifications as a mark of quality in products and processes:
  - **ISO 9001** – Quality
  - **ISO 14001** – Environment
  - **OHSAS 18001** – Health and safety in the workplace



# CATOR – Integrated Management Model



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# Key factors to success

1. Legislation making 100% regeneration compulsory
2. Financial aid for regeneration management
3. Integrated Management Model (Collection + Regeneration)
4. Collection controls (One manager per geographic area)
5. Territory boasts sufficient volume of oil
6. Production of quality base oils

Cator.