

BEST AVAILABLE TECHNIQUES (BAT) FOR ENVIRONMENT AND WATER MANAGEMENT

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**PROMESS - TUNISIA
BONTEMANTEL –
NETHERLANDS**



**The Nature and Water Knowledge Sharing Forum
SharmEl Shaikh, Egypt ,11 – 13 may 2015**

Content of the presentation

- **IPPC / IE Directive**
- **BAT Reference Documents (BREFs)**
- **BAT implementation methods**
- **BAT in South MED**
 - **Identification methods in different sectors**
 - **BAT for WWT and WWRE**
- **Dutch experience on BAT**

IPPC Integrated **P**ollution **P**revention and **C**ontrol Directive

The new **IE** Industrial **E**missions Directive

- The main targets of the IPPC / IE Directive
- Definition of BAT in the Directive
- From IPPCD to IED
- Implementation of the Directive

IPPC DIRECTIVE (EC, 2008)

1. Integrated **regulatory** system aiming a high level of protection for the environment as a whole
2. Operating **permits** for industry with conditions to be based on “best available techniques” (**BAT**) :

‘ **Single authorization = Integrated Environmental Authorization** ’

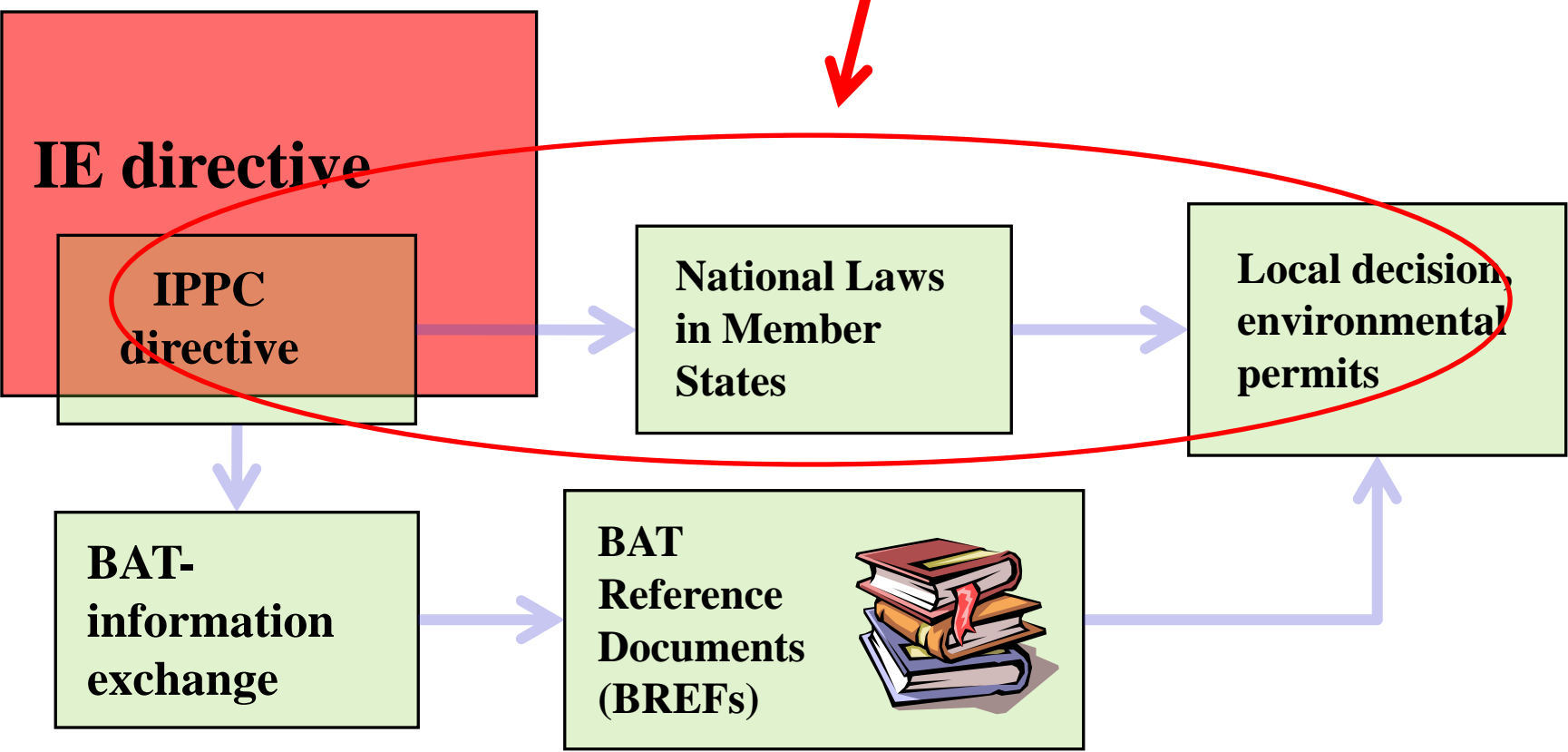
3. Preparing the BAT Reference Documents **BRFE**

Specific industrial sector : techniques and processes, current emission, consumption levels, techniques to consider BAT..



Exchange of information on BAT

LEGAL FRAMEWORK, CONCEPT OF BAT



1. LEGAL FRAMEWORK

2. INFORMATION EXCHANGE ON BAT

IPPC / DEFINITION OF BAT

‘ **Best available techniques** ’ means the most **effective** and **advanced** stage in the development of activities and their methods of operation

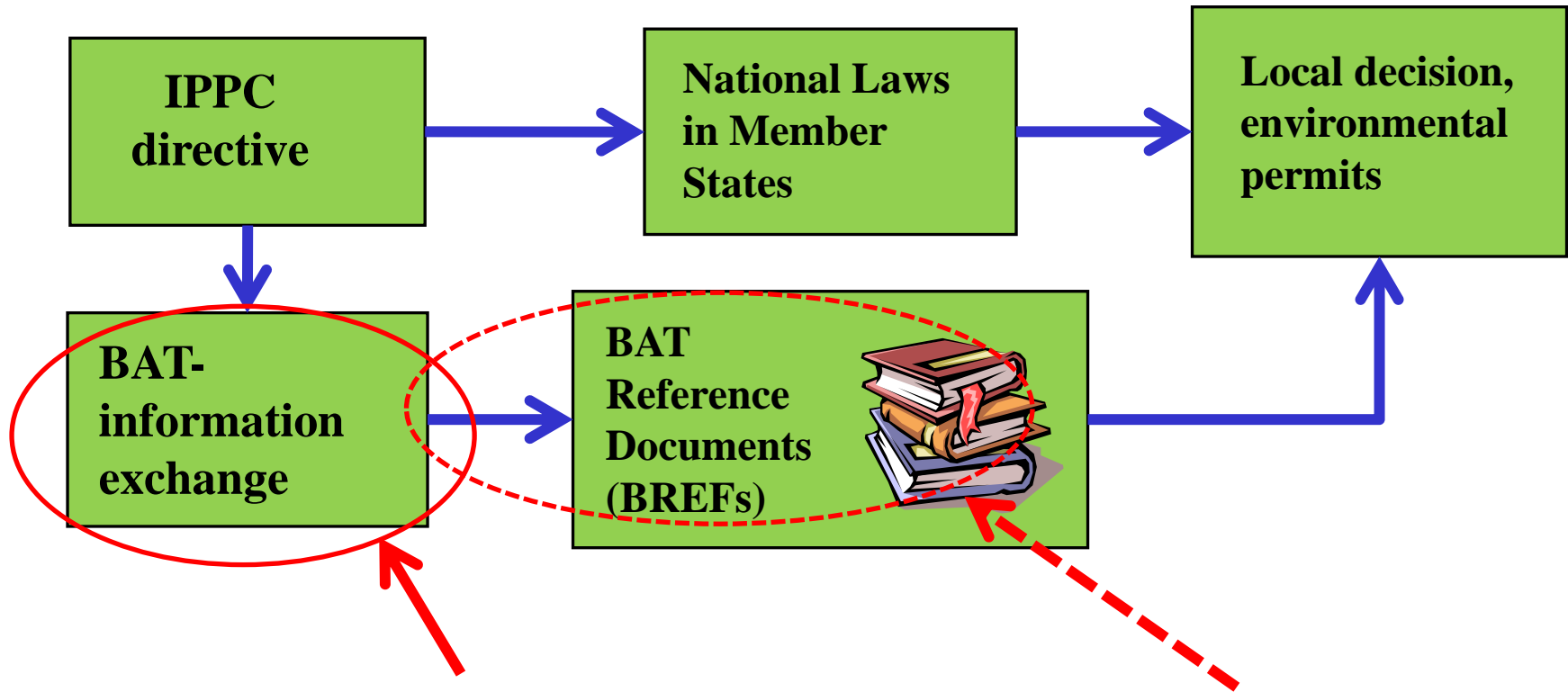
➔ Practical suitability of particular techniques for providing in principle the basis for **emission limit values**:

- **Prevent**
- **Reduce emissions and the impact on the environment**

Best : Most effective

Available : implementation: economically and technically viable, reasonably accessible to the operator

IPPC / BREF DOCUMENTS

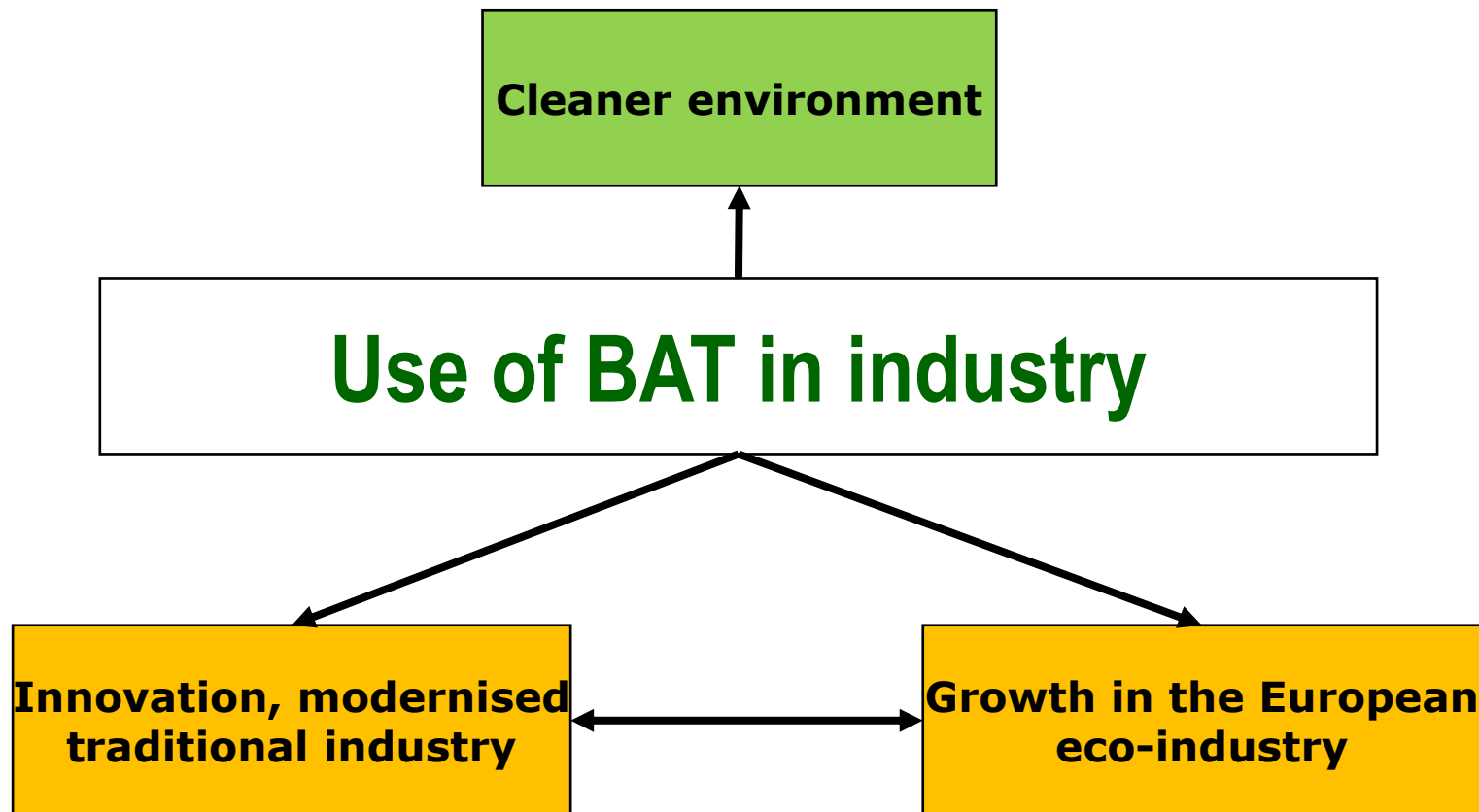


- BAT information exchange process through the BAT Network
- Technical Working Group is composed of European experts from Industry, Member States authorities and NGO

BAT in BREFs is a reference point against which to judge the current performance of :

- **Existing installation**
- **Proposal for a new installation**

WIN-WIN APPROACH OF IPPC



Source: Presentations of EIPPCB

IPPC evaluation:

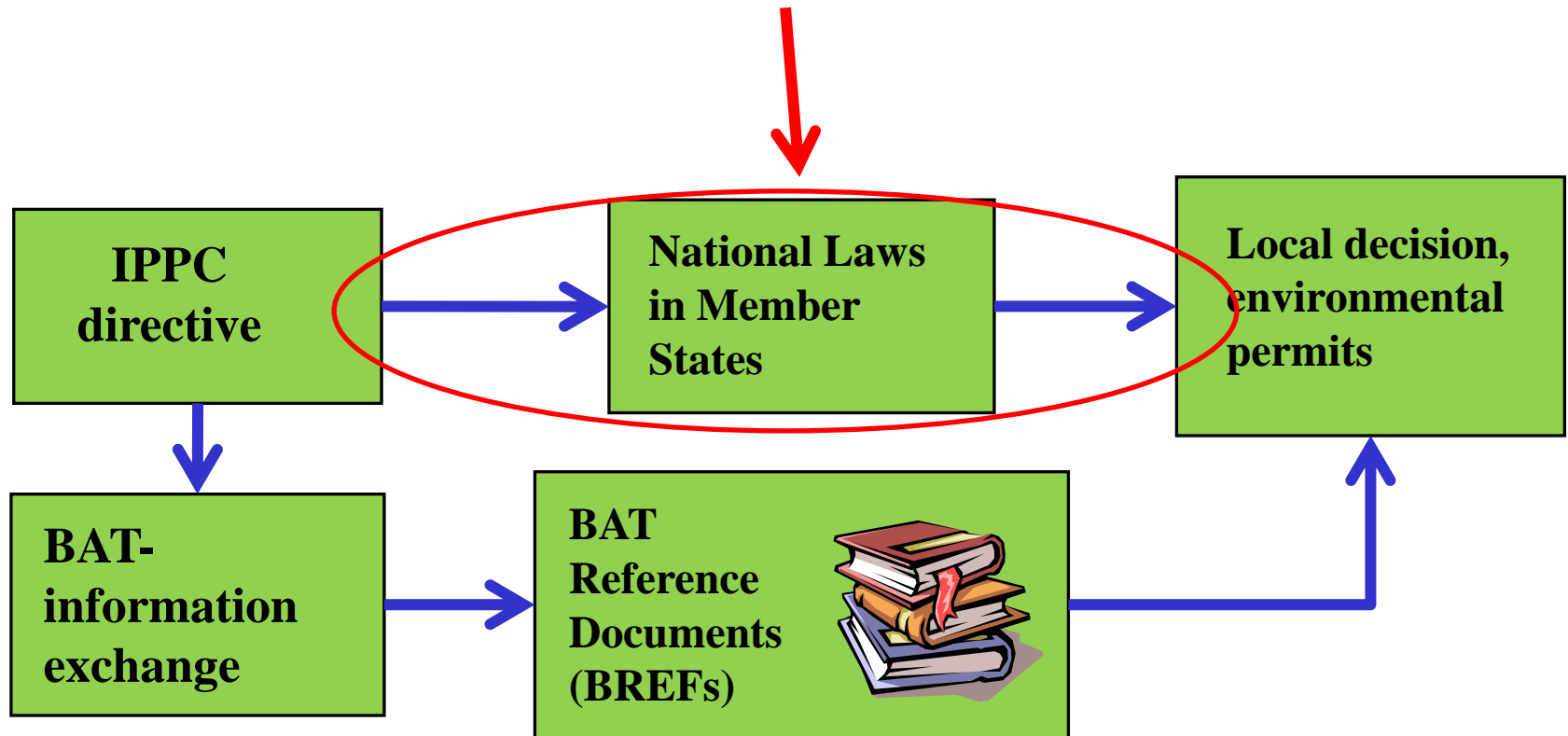
➔ - 7 directives (IPPCD, LCPD, WID, VOCD and TiO2D)
Industrial Emissions Directive (**IE**)

- EU countries must encourage Development and application of emerging techniques, in particular for those emerging techniques identified in BREF

- New chapter in BREF: **BAT conclusions** of the BREF

➔ **Permits** must contain emission limit values (**ELVs**) ensuring that emissions do not exceed BAT-associated emission levels (**BAT-AELs**)

IPCC / BAT IMPLEMENTATION



1. Operators **application** for the **environmental permit** according to national laws:
 - Operator's assessment of how BAT is applied in their own activity
 - BREF will assist in the determination of 'BAT-based' Emission Limit Values and other permit conditions
 - BAT conclusions binding concerning BAT emission levels
2. **Permit authority determines** appropriate emission limit values and other permit conditions based on BAT
3. **Negotiations** between authorities and operators BREFs and national BAT reports

Industrial production processes

Water Pollution : Emissions

- Greenhouse gases: ecosystems
 - Acidifying substances
 - Wastewater
 - Waste
-
- * Inadequate technical capabilities
 - * Demand for economic incentives
 - * Weak control and legal enforcement

1. Select sectors: **Highest environmental benefit potential**

Qualitative and quantitative data on aspects:

1.1 Economic

1.2 Environmental: Higher relevance to water

1.3 Social, health and institutional

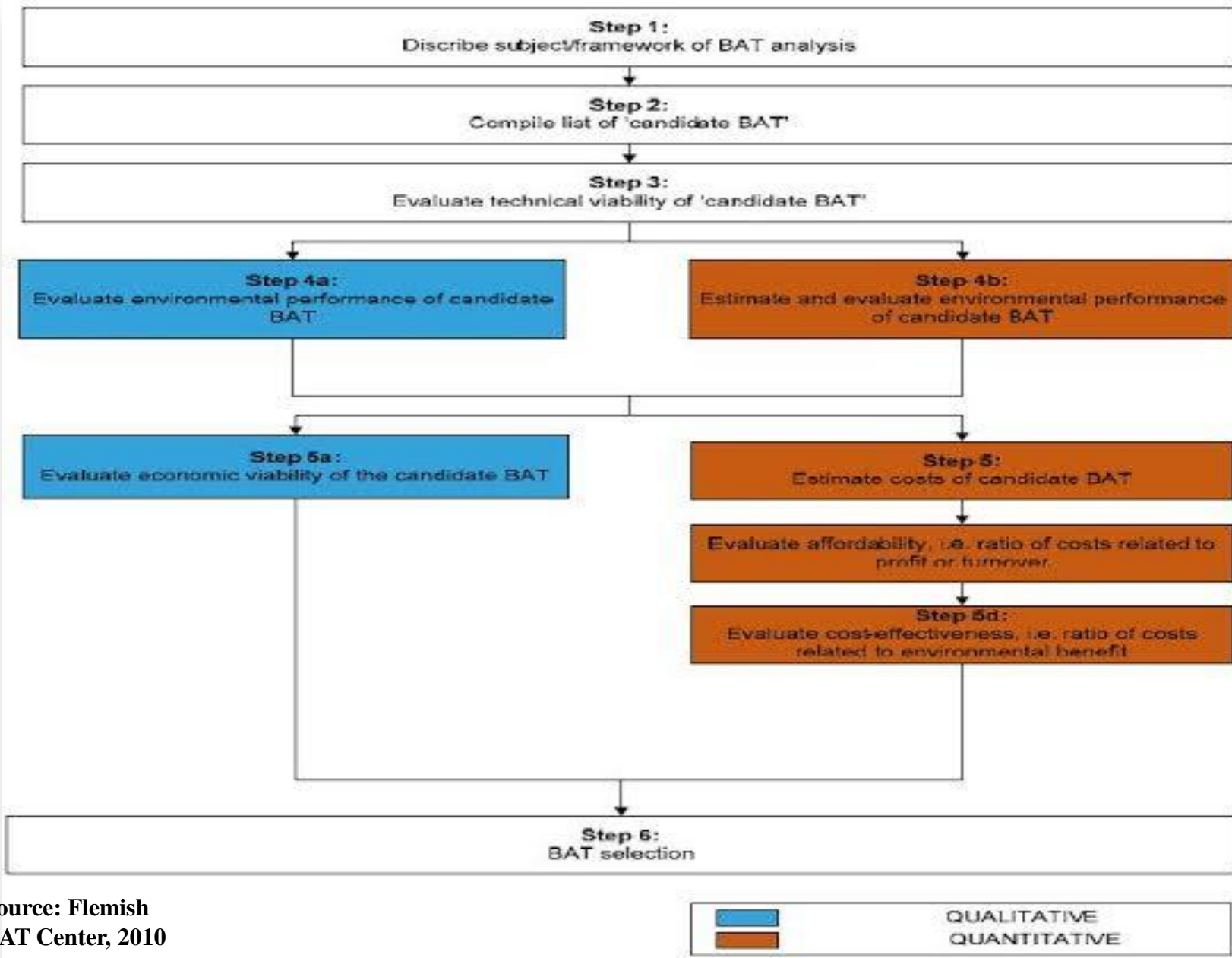
 Tunisia, Egypt and Morocco:

- Food, drink and milk industries
- Textile industry

2. BAT determination/assessment (Flow chart)

3. Potential convergence with IPPC approach

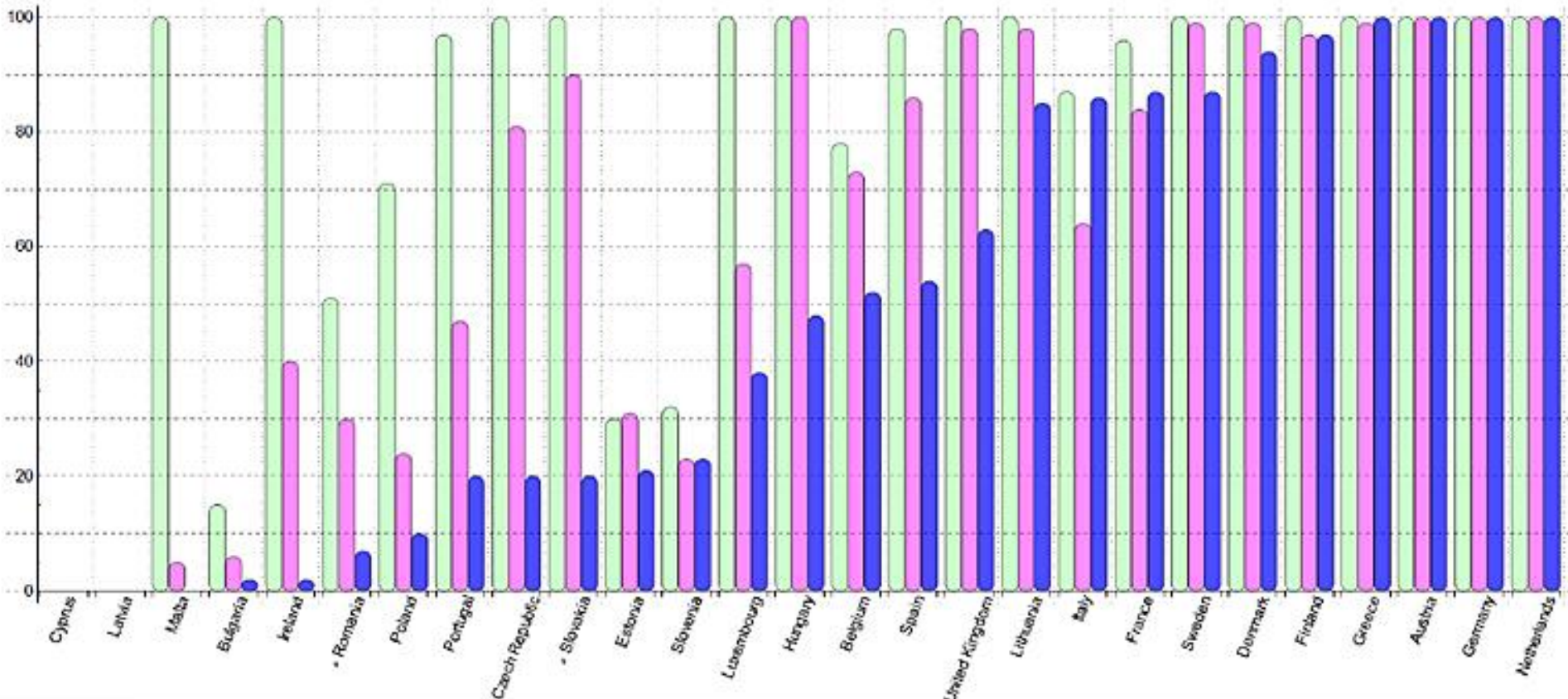
BAT DECISION



Source: Flemish
BAT Center, 2010

BAT / WWTR IN PRACTICE: NETHERLANDS

Urban Waste Water Monitoring, UE



Source : European Commission reports, 2013

The Netherlands is in top of 3 UE members that fully comply with the EU Urban Waste Water Treatment Directive

New water treatment technologies to remove nutrients

➔ Meet EU's strict standards on phosphate and nitrogen for wwtp plants: **Nitrogen removal from the sludge water**

Technologies : Babe, Sharon, Anammox and Amfer

1. The dewatering of sludge results in a side stream that contains by far the highest nitrogen concentration at a wwtp plant.

2. The treatment of this side stream

➔ Reduce the nitrogen concentration on the effluent that is finally discharged



New aerobic treatment technologies

Anammox

Based on new micro-organisms and activated sludge (granular)
The new micro-organism concerns the **anammox bacteria** that converts ammonium into nitrogen gas

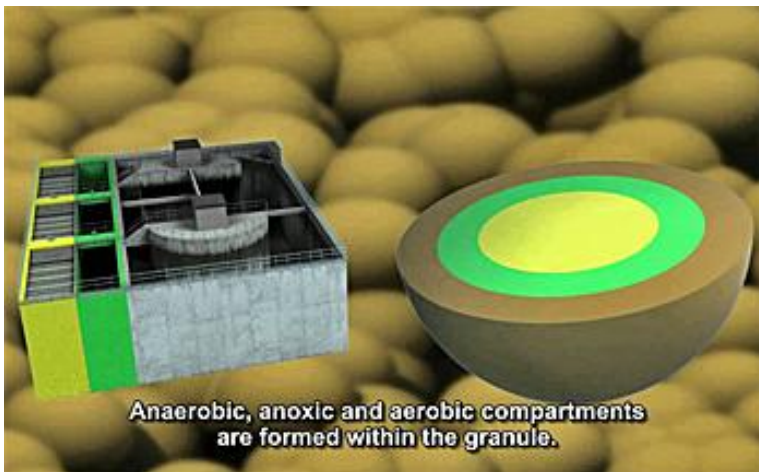
The first Anammox plant for the full treatment process is now tested at wwtp Dokhaven, Rotterdam



New aerobic treatment technologies

Nereda process

- Sequencing batch reactor (SBR) technology
- Unique aerobic granular biomass of grain forming bacteria that quickly settles
- 40% energy saving at wwtp Epe, the Netherlands
- Does not require large settlement tanks



شكرا – MERCI - THANK YOU

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