THE IMPORTANCE OF BUILDING DOWNWASH IN ASSESSING THE NEED TO HEIGHTEN STACKS OF EXISTING SMALL AND MEDIUM SIZED INDUSTRIES

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1. CONTEXT

STACK HEIGHT ACCORDING TO 1990 PORTUGUESE REGULATION

\[ A_c = a + 1.5 \cdot l \]

\[ l = \min (a, b) \]
1. CONTEXT

STACK HEIGHT ACCORDING TO 1990 PORTUGUESE REGULATION

GREAT MAJORITY OF PORTUGUESE INDUSTRIES ARE SMALL AND MEDIUM SIZED

Deficiencies in regard to atmospheric pollutant dispersal
1. CONTEXT

STACK HEIGHT ACCORDING TO 1990 PORTUGUESE REGULATION

GREAT MAJORITY OF PORTUGUESE INDUSTRIES ARE SME

Deficiencies in regard to atmospheric pollutant dispersal

Low mass flow of pollutant emissions

Discontinous emissions
2. STACK HEIGHT ACCORDING TO DISPERSION MODELING

METHODOLOGY

Site visit

Building downwash analysis

Shulman et al. (1998)
2. STACK HEIGHT ACCORDING TO DISPERSION MODELING

METHODOLOGY

Site visit

Building downwash analysis

Long/short-term atmospheric pollutant dispersion modeling

Analysis of environmental pollutant concentration modeling results

Conclusions regarding stack heightening need or other plant layout changes
2. STACK HEIGHT ACCORDING TO DISPERSION MODELING

COMMON RESULTS (FOR SME)

- Importance of building downwash analysis to:
  - Justify the need to heighten stacks
  - Present arguments that convince the SME decision makers
3. CONCLUSIONS

-The methodology applied to determine SME stack heightening needs revealed the importance of building downwash analysis.

-The understanding of building downwash phenomena by SME’s decision makers can be decisive for greater environmental concerns.

-Unjustified and hard to understand environmental legislation may cause difficulties in regard to law enforcement.