



HARMO9

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

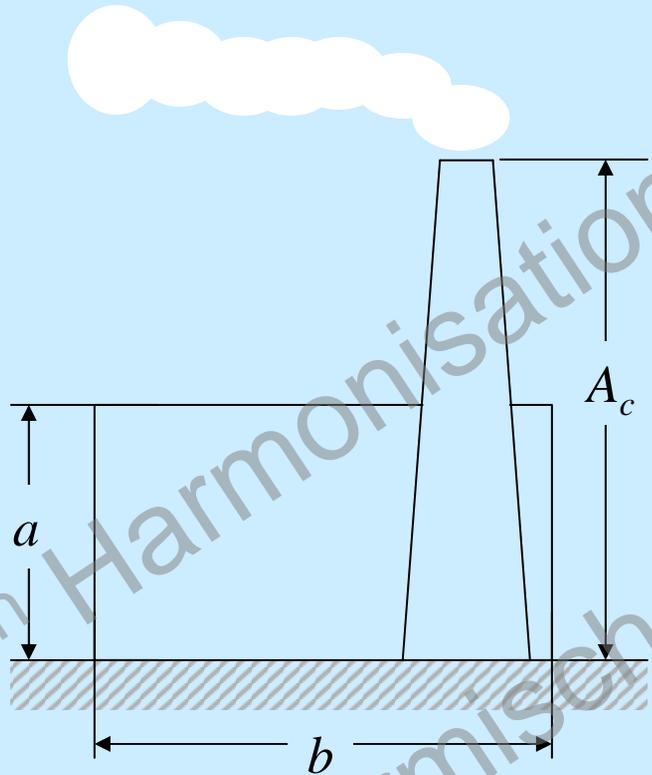
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1. CONTEXT

STACK HEIGHT ACCORDING TO 1990 PORTUGUESE REGULATION



$$A_c = a + 1,5 l$$

$$l = \min (a, b)$$

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STACK HEIGHT ACCORDING TO 1990 PORTUGUESE REGULATION

GREAT MAJORITY OF PORTUGUESE INDUSTRIES ARE SMALL AND MEDIUM SIZED

Deficiencies in regard to atmospheric pollutant dispersal



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STACK HEIGHT ACCORDING TO 1990 PORTUGUESE REGULATION

GREAT MAJORITY OF PORTUGUESE INDUSTRIES ARE SME

Deficiencies in regard to atmospheric pollutant dispersal

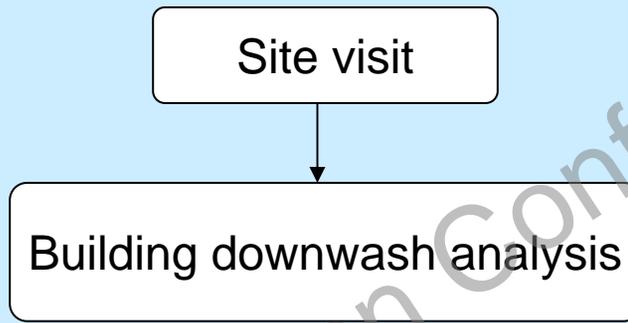
Low mass flow of pollutant emissions

Discontinuous emissions

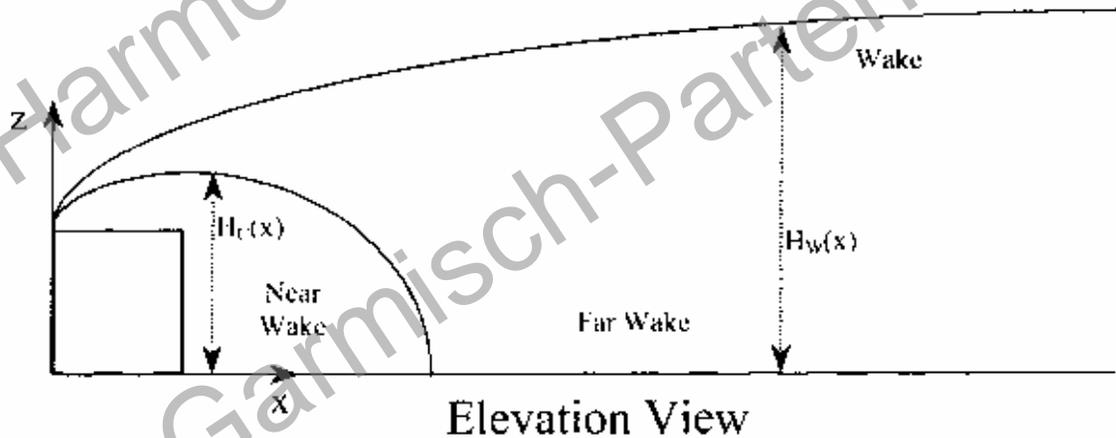


2. STACK HEIGHT ACCORDING TO DISPERSION MODELING

METHODOLOGY

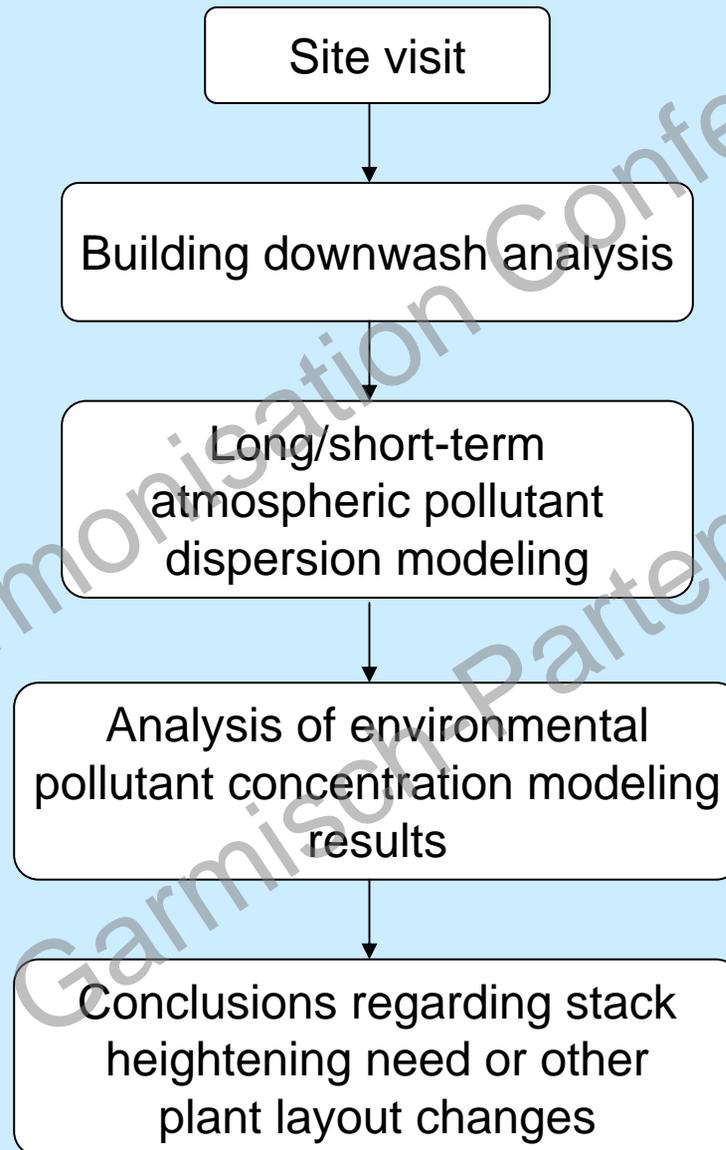


Shulman et al. (1998)



2. STACK HEIGHT ACCORDING TO DISPERSION MODELING

METHODOLOGY



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**

9th Harmonisation Conference
Garmisch-Partenkirchen

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**