

Case Study 3 (Final Evaluation): Eia of a Port's Project using scheme of the environmental stages (using the forms and documentation on a real case-study in Italy)

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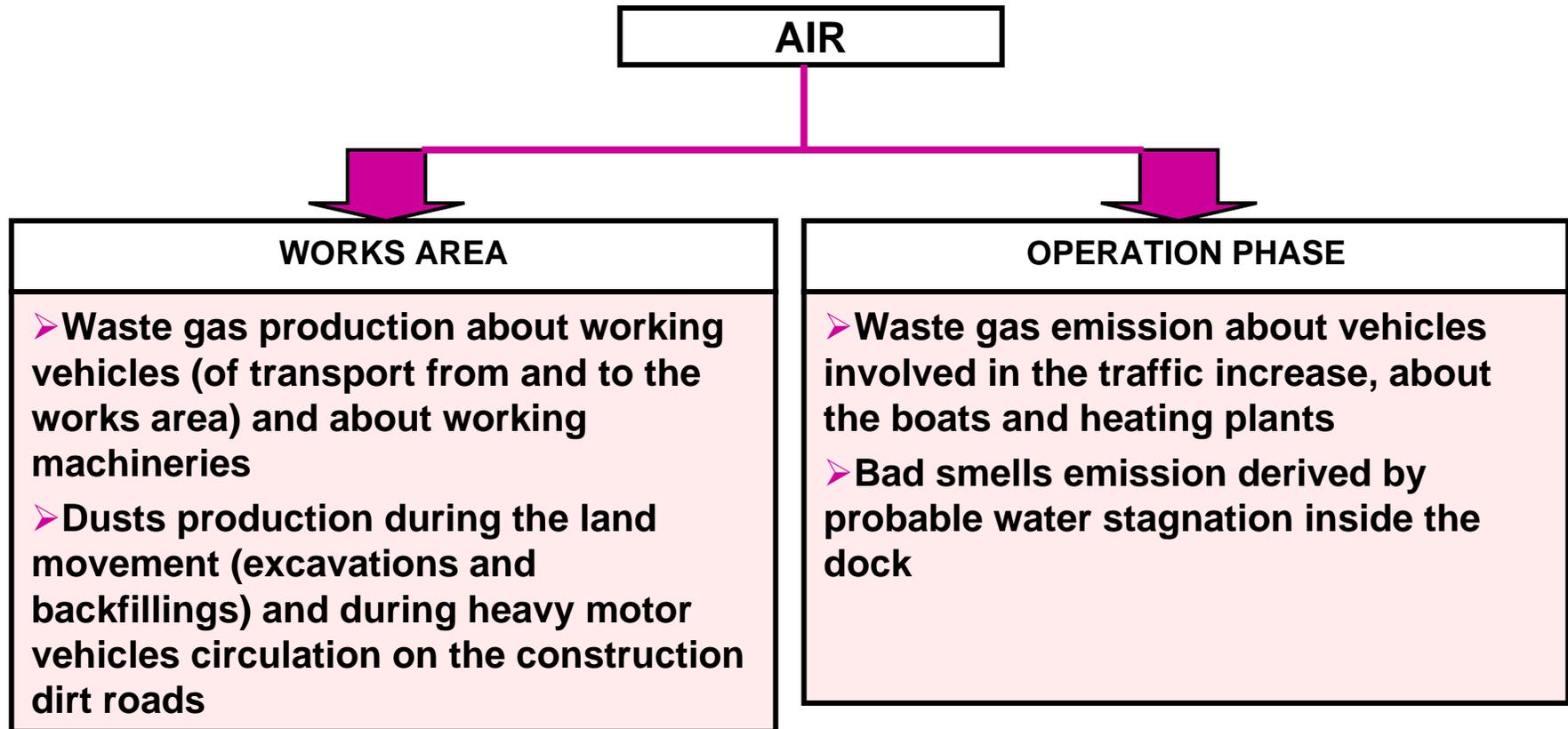
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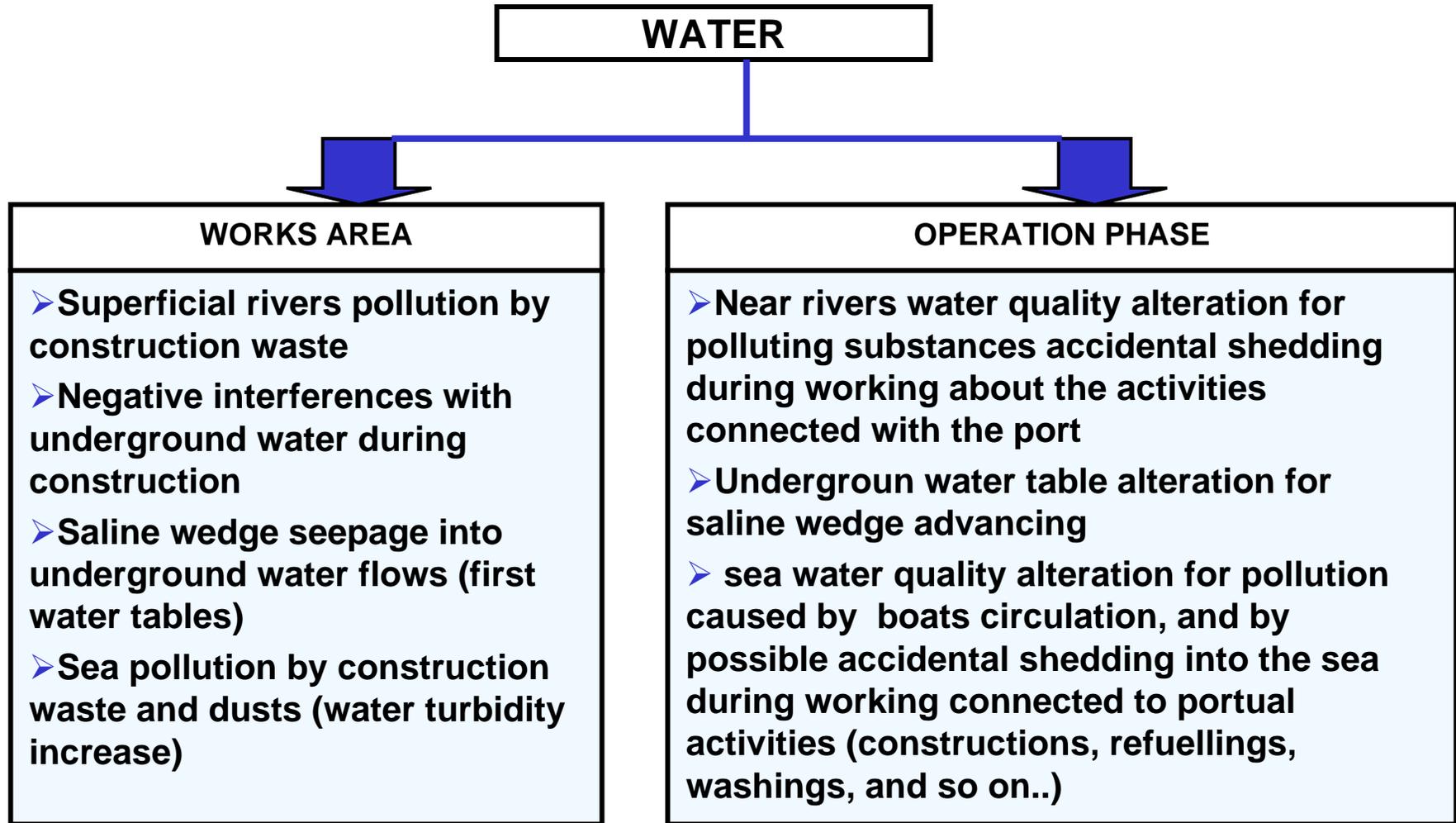
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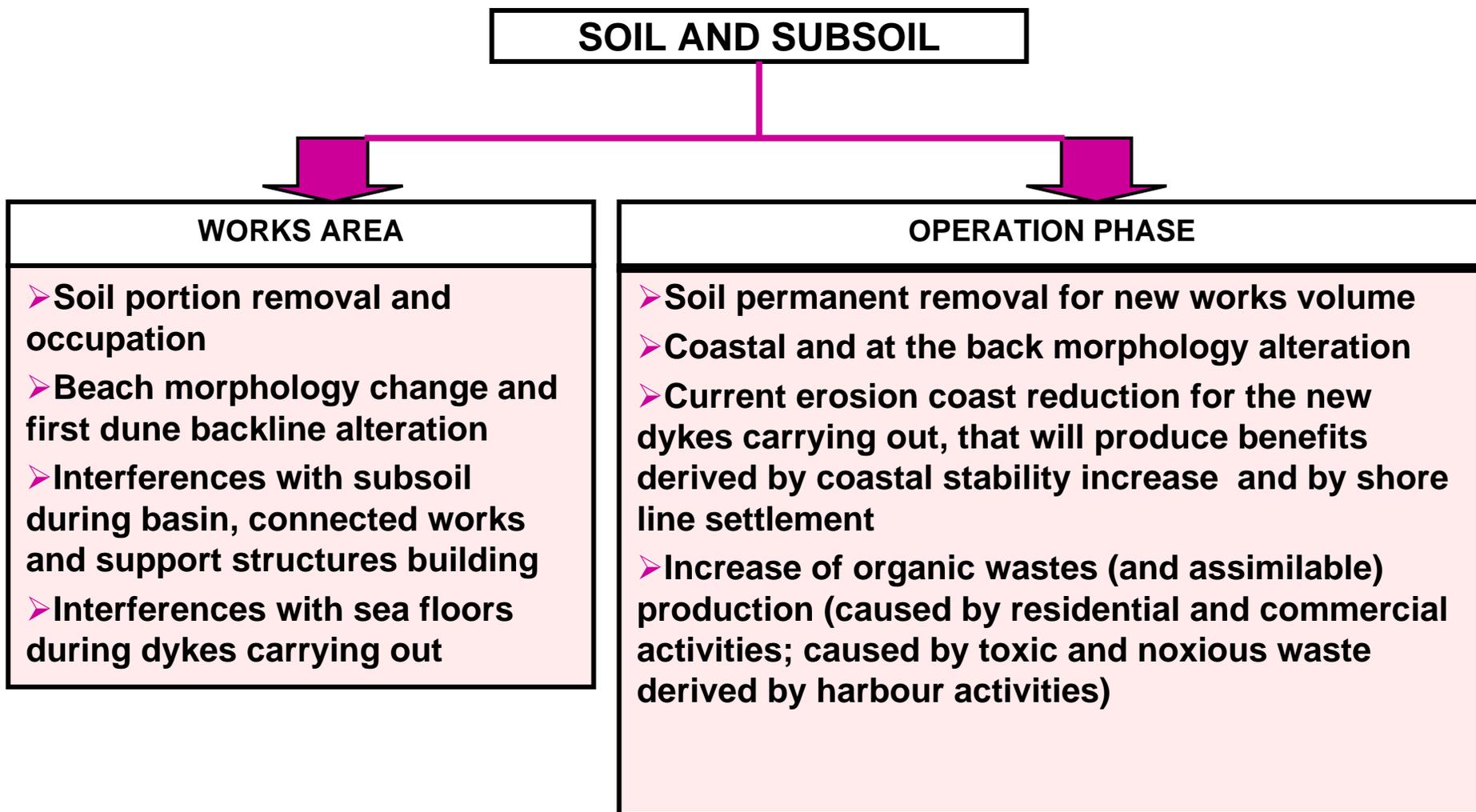
1. Foreseen impacts: Air



2. Foreseen impacts: Water



3. Foreseen impacts: Soil and Subsoil



4. Foreseen impacts: Vegetation, Flora, Fauna and Ecosystems

VEGETATION, FLORA, FAUNA AND ECOSYSTEMS

WORKS AREA

- Present vegetation destruction and probable alteration of present vegetation along service construction road network
- Fauna destruction in basin area and noise to whether sea fauna or present fauna along service construction road network
- Noise to anthropic ecosystem present whether in sedentary way or temporary way

OPERATION PHASE

- Present land habitat destruction with basin carrying out, will cause the change by an land ecosystem to a sea ecosystem, with new sea vegetable coverings formation and new habitat settling
- Of course the vegetable covering will have a qualitative and quantitative revaluation, with plantation of essences the same as present protected plants, with good health state
- Of course the anthropic ecosystem will have a positive impact for the strong naturalistic mark that the area will have at complete works

5. Foreseen impacts: Public Health and Social-Economic Context (a)

WORKS AREA
<ul style="list-style-type: none"> ➤ Vegetation destruction inside works area and surrounding vegetation alteration for dusts and pollution produced by transport and working vehicles ➤ Fauna destruction in works area and annoyance to fauna of wide area involved in workings and transport from and to construction area ➤ Annoyance caused to present receptors for pollution and noises produced by workings and by transport from and to construction area

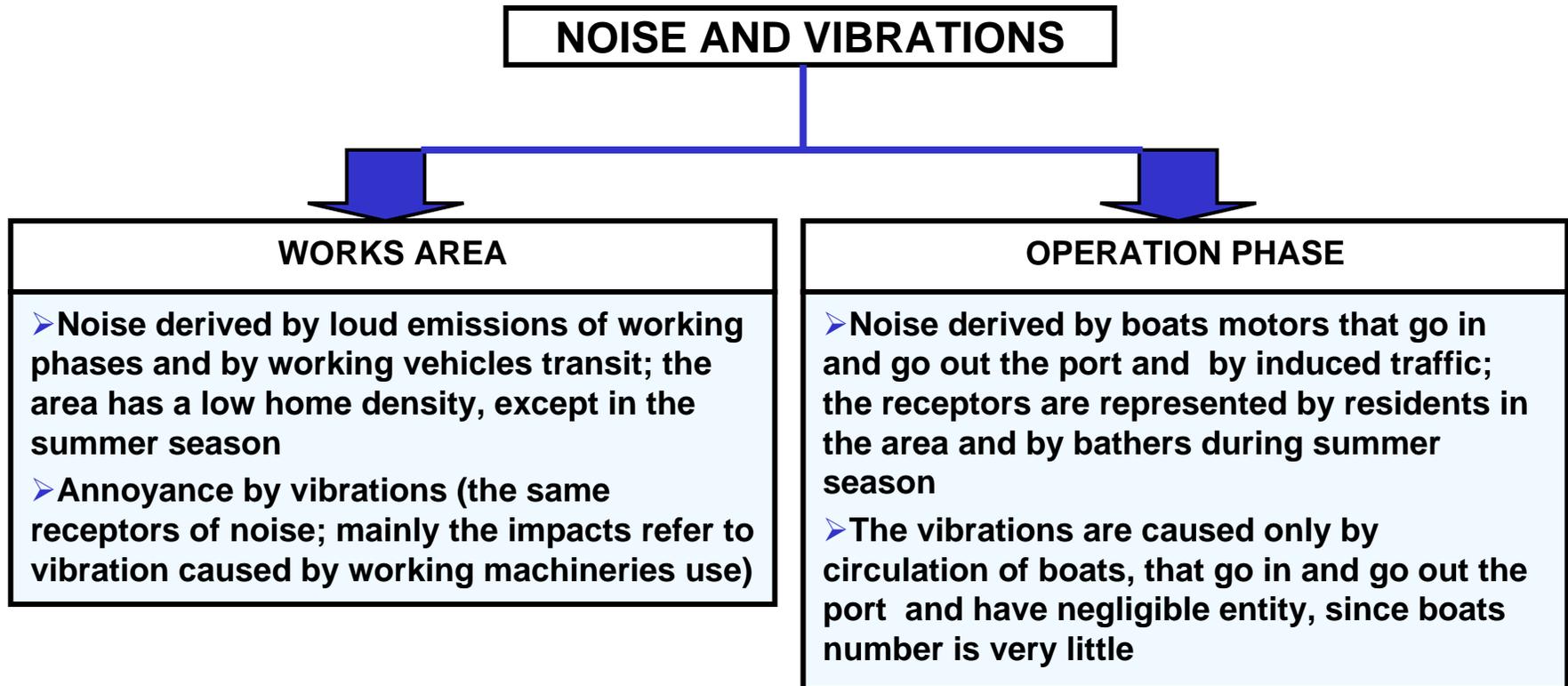
OPERATION PHASE
<ul style="list-style-type: none"> ➤ Positive vegetation impacts (for ecological passageways reconstruction with essences plantation for mitigation actions), in quantitative way (for arboreous and shrub essences increase, besides grassy wide areas) and in qualitative way (for native and healthy essences plantation); consequent positive impacts also on fauna ➤ Annoyances to sea fauna for boats circulation, and to land fauna for activities connected to the port and for induced vehicular traffic increase ➤ Annoyances by pollution and noise derived by induced vehicular traffic, by boats traffic and by support activities ➤ Bad smell production derived by internal basin water possible stagnation ➤ Psycho-perceptive and visual alterations derived by morphologic area variation, by new portual use (custom to changes); the alterations are positive, also if for some receptors can be negative (personal sensibility degree)

6. Foreseen impacts: Public Health and Social-Economic Context (b)

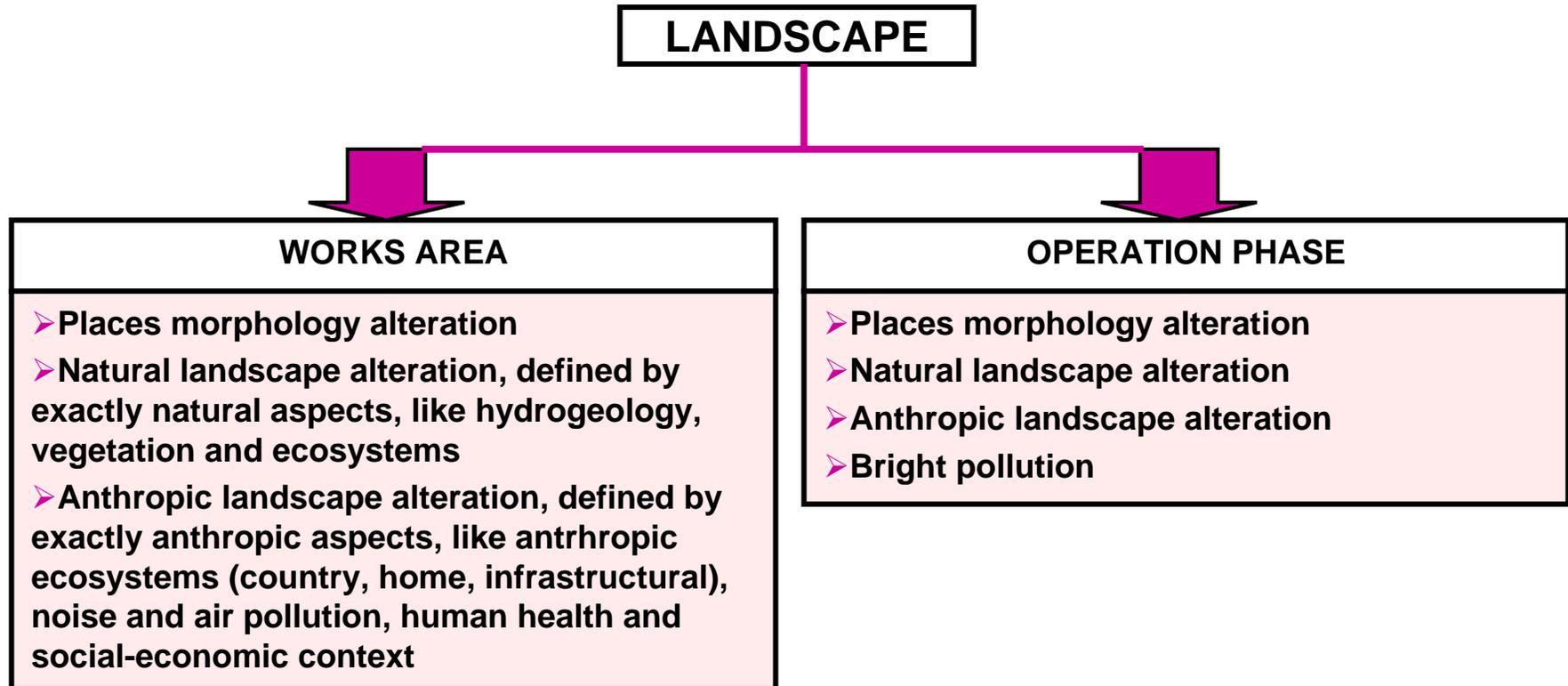
WORKS AREA
<ul style="list-style-type: none"> ➤ Psycho-perceptive annoyances derived generally by visibility and sensory perception; difficulties caused by construction activities (heavy vehicles traffic increase, possible circulation stoppages, forbidden directions, parking areas decrease, and so on...) ➤ Incidents possibility derived by traffic increase and by workings ➤ Interference with existent tourist and commercial activities ➤ Jobs increase

OPERATION PHASE
<ul style="list-style-type: none"> ➤ Waste production increase (urban solid and assibilable derived by residential activities; toxic and noxious derived by some activities connected to the port, like oils, fuels, constructions waste for boats maintenance) ➤ Incidents possibility by induced vehicular traffic increase and by boats traffic in the sea ➤ Positive impacts derived by jobs increase, so by consequent profitability, employees life tone and quality ➤ Positive impacts derived by environmental requalification of interested area and whole surrounding, that at present are in part abandoned and degraded

7. Foreseen impacts: Noise and Vibrations



8. Foreseen impacts: Landscape



9. Landscape unit: Type-card

Denomination - Location		WORKS PHASE	OPERATION PHASE
Foreseen interventions			
Landscape elements	Morphologic structure		
	Vegetable covering		
	Water net		
	Chromatism		
	Historic and testimonial heritage		
	Perceptive aspects		
Landscape specific use	Anthropic testimony conservation		
	Natural presences conservation		
	Visual use		
	Recreational use		
	Cultural and formative use		
	Landscape furniture and connotation		
Total			

Landscape unit: type-card

10. Visual basin



Visual basin identification; visual corridors and cone

11. Impacts mitigation (a)

The foreseen vegetable actions at the same time perform the task to mitigate impacts derived by air, bright and acoustic pollution. Moreover they rebuild the ecological connecting elements and visually screen the works. The foreseen vegetable actions are:

[A] dune line rebuilding interventions in the looking on to sandy shore site from area limit to north pier

[B] linear interventions with tree lines to create vegetable barriers; some lines will alternate with tamarisks, so divided:

- screening by bright pollution divided into two backdune lines parallel to the coast (1)
- vegetable screening along the rivers, to create a filter for near present houses and railway (2)
- two tree lines parallel to parking areas (3)
- screening parallel to the railway with primary objective to mitigate noise derived by same railway; tree are alternated to shrub plants in parallel lines with a foliage thickness of 10-15 metres (4)
- tree line perpendicular to the coast, up to screen present buildings (5)

12. Impacts mitigation (b)

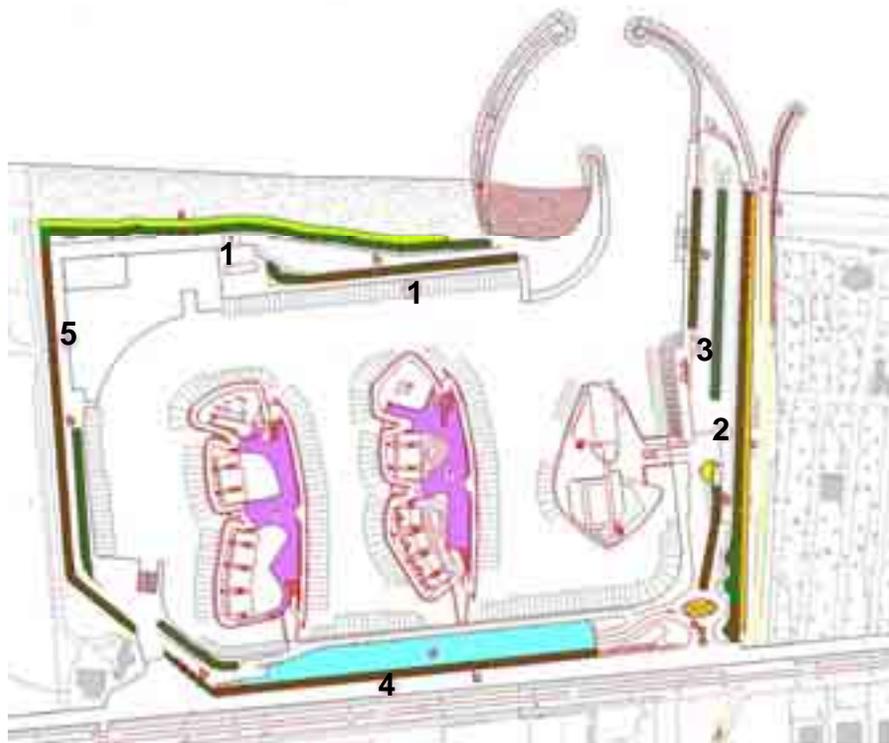
[C] vegetation rebuilding interventions along the present river

[D] green interventions on road covering parallel to railway between two basin entries; area with hydrosowing like meadow with tree and shrubs grouped

[E] green interventions in the rotatory for internal dock area traffic distribution, with hydrosowing like meadow and floral plants

[F] equipped green interventions on the isles: hydrosowing like meadow and tree and shrubs grouped

13. Mitigation works map



-  Dune line rebuilding
-  Tree lines – vegetable barrier with tamarisks rebuilding
- 1 Bright pollution screening
- 2 Screening along the river
- 3 Tree lines
- 4 Screening parallel to railway
- 5 Present buildings screening
-  Vegetation rebuilding along the river
-  Area with hydrosowing like meadow, tree and shrubs grouped
-  Area with hydrosowing like meadow and flowerbeds
-  Isles equipped park settlement with hydrosowing like meadow, tree and shrubs grouped

14. Used green elements

Pioneer plants that present typical adaptations of arid and brackish environments:

- a very developed root system such as to reach water deeply
- succulent leaves and stems for water reserve
- exposure surface reduction
- very short biological cycle



Ruchetta di mare (*Cakile maritima*)



Ammofila (*Ammophila litoralis*)



Agropiro (*Agropyron junceum*)



Pastinacia spinosa (*Echinophora spinosa*)



Eringio marittimo (*Eryngium maritimum*)



Finocchio di mare (*Crithmum maritimum*)