

# Dune formation at the Sand Motor: expectation vs. reality

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# Environmental Impact Assessment (EIA):

+7 ha dune area after 5 years

+33 ha dune area after 20 years



dominant wind direction





# Environmental Impact Assessment (EIA):

+0.6 km<sup>2</sup> of area after 5 years

+2.36 km<sup>2</sup> of area after 20 years

30 – 35 m<sup>3</sup>/m/year



19 m<sup>3</sup>/m/year



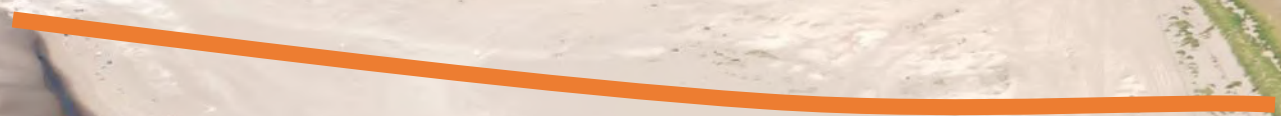
7 m<sup>3</sup>/m/year



17 m<sup>3</sup>/m/year



dominant wind direction





# Environmental Impact Assessment (EIA):

+0.6 Mm<sup>3</sup> dune volume after 5 years  
+2.6 Mm<sup>3</sup> dune volume after 20 years

30 – 35 m<sup>3</sup>/m/year

dominant wind direction

19 m<sup>3</sup>/m/year

7 m<sup>3</sup>/m/year

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dominant wind direction



# Dune formation at the Sand Motor

**Realization** < **Expectation** < **Transport capacity**  
20% 50% 100%  
30%





dominant wind direction





# Dune formation at the Sand Motor 2.0

- Local vs. regional dune development
- Interfaces
  - Water-beach interface as primary supplier of sediment
  - Beach-dune interface as primary catchment area
- Controls
  - Construction height and slope
  - Construction material
  - Size and position of water bodies with respect to fetch