



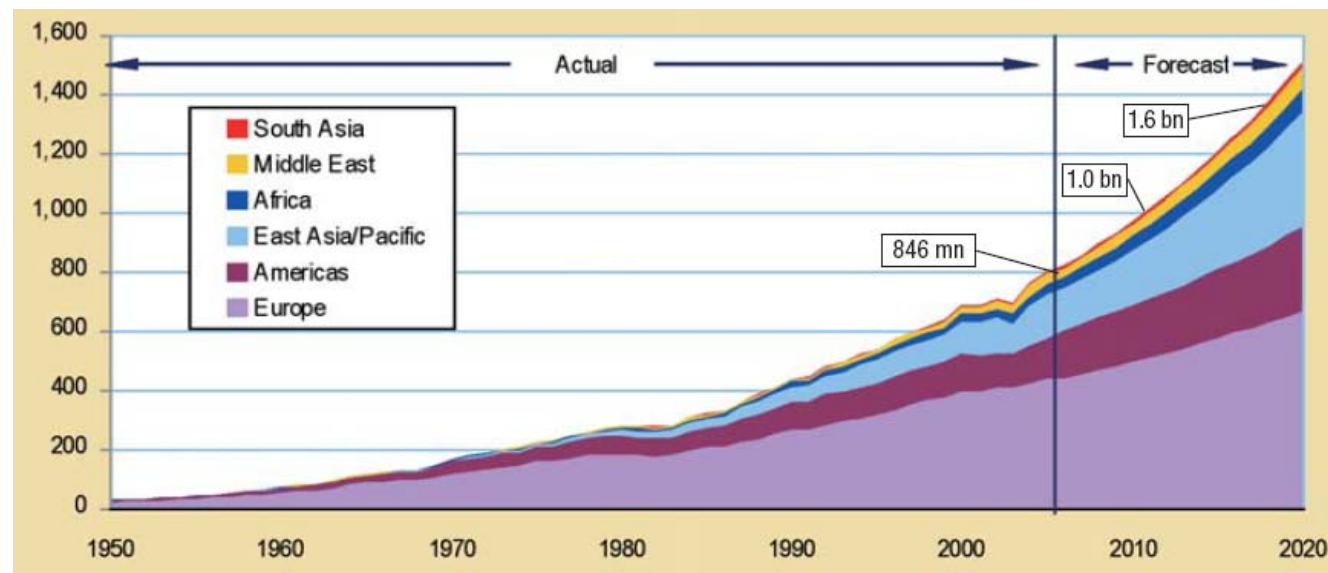
Wastewater policy and tourism in coastal cities and islands

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Introduction: the double-sided impacts of tourism

- Managing wastewater services will always be a major challenge for seaside communities.
- Asia and the Pacific is the rising star of tourism in the world. This region attracted 185 million visitors in 2007.
- Tourism is at the same time a high contributor to economies and high contributor to water contamination when sanitation facilities are lacking.
- The coast is a source of pride for many communities and the sea is a common asset that should be preserved.



International Tourist Arrivals,
Source: World Tourism
Organization

Part I



The impact
of the wastewater
discharged
by tourists

Tourism is exacerbating the water crisis and the pressure on coastal areas.

- With regard to sanitation, mass tourism translates into a higher concentration of household pollutants to be treated and a risk of exceeding the capacity of aquatic environments to eliminate effluent discharged into them.
 - ➔ According to the United States' EPA estimates, in one week, 3,000 cruise passengers produce 796,000 L of sewage; 3.5 million L of water from showers, toilets and washing machines; 140,000 L of oily bilge water;
 - ➔ Tourists are more and more demanding with regards to modern conveniences. They will consume more water and reject more wastewater.
- In an increasingly competitive market, the quality of the environment is one of the most important criteria for tourists when selecting a holiday's destination. As a consequence, tourism is susceptible to anything that can compromise bathing.
- Tourists' direct discharges to environment damage it and reduce tourism potential. Therefore it is necessary to protect tourism against its own consequences.

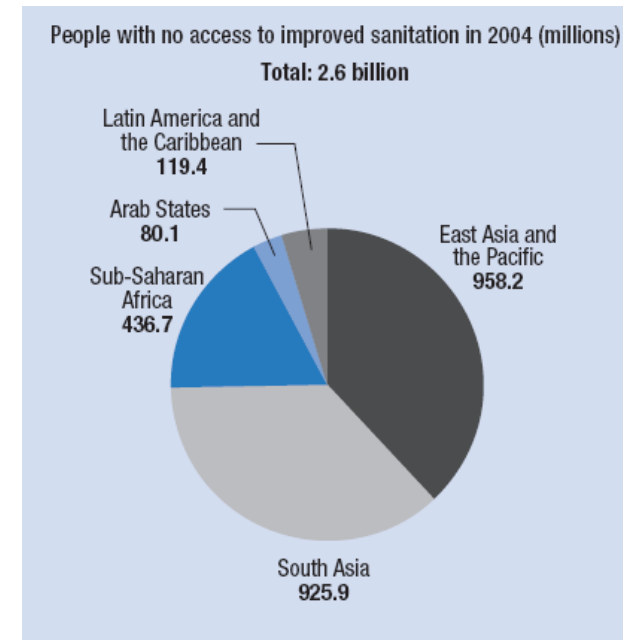
Part II



**Sanitation
is one
of the great
omissions
of water policies**

Deficit in access to sanitation and then deficit in health

- Coverage rates are extremely low: only 1 in 2 people in East Asia has access to sanitation facilities.
- In order to respect the MDG, East Asia and the Pacific will have to provide sanitation facilities to 330 million inhabitants and Latin America to 60 million inhabitants.
- Sanitation is among the most powerful drivers for human development.
- Sanitation suffers from a combination of institutional fragmentation, weak national planning and low political status.
- However, closing the vast deficit in sanitation is feasible:
 - ➔ Thailand recently achieved 100% coverage in sanitation on the national level;
 - ➔ Government programmes in Colombia has expanded access to sanitation across all wealth groups. The coverage rate amounts to 86%.



Beyond the issue of access to basic sanitation for all, there is a lack of efficient collection and treatment systems

- Many coastal cities have achieved a minimal level of sanitation service at household. But in most cases, these investments have not been followed by the development of public infrastructure, such as feeder and trunk sewerage systems.
- Other cities have feeder and trunk wastewater systems, but no or very limited sewage treatment capacity.

% of wastewater discharged into rivers and seas without treatment – Source: UNEP

**East Asia:
90 %**

**South East
Pacific: 80 %**

**Latin-America & the
Carribean: 85 %**



In the huge urban sprawls with their teeming population, urban inflation generates pollution at unbearable levels.

- The destructive potential of wastewater that is neither collected nor treated is truly explosive.
- These sanitary bombs are primed, ready to explode, one after the other.
- Sea is the primeval source of water but also the final garbage. The sea suffers from the illusion of its immensity and invulnerability.
- If we do not protect the Pacific Ocean, we not only endanger an irreplaceable ecological heritage but also the professions that earn their livings from tourism and fishing, and the many water-based leisure activities that require impeccable sanitary quality.



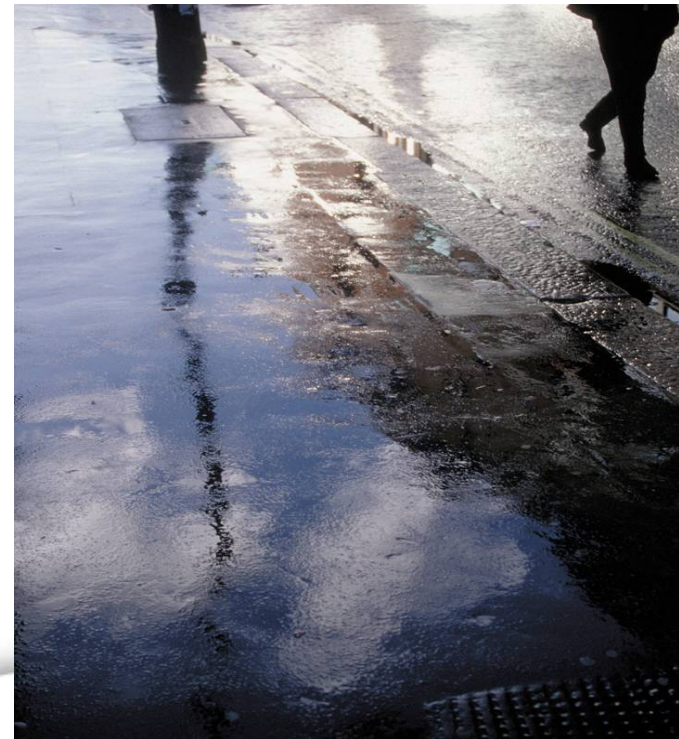
Part III



A multi-pronged strategy to manage wastewater and preserve tourism potential

Many different sources of marine pollution should be treated

- Examples of sources of contamination:
 - ➔ direct discharges of uncollected wastewater into the natural environment;
 - ➔ discharges from wastewater collection systems;
 - ➔ discharges from wastewater treatment plants when operation deteriorates;
 - ➔ discharges into the environment from stormwater collection systems, during wet weather.
- To ensure conservation of water quality and the sea's many gifts, it is vital to work simultaneously on all the sources of pollution of aquatic environments.
- None of them can be left out. If just one of the potential causes of pollution is neglected, the efforts made to deal with the other sources could be reduced to nothing.



Bridging the gap of universal access to sanitation is the priority. But we shall not restrict sanitation to toilets

- Managing a wastewater system means to:
 - ➔ Collect wastewater. Removing wastewater from the vicinity of houses guarantees health protection for the local community;
 - ➔ Ensure the absence of leaks in pipe systems to limit the infiltration of aquifers;
 - ➔ Ensure a thorough and constant level of treatment, in order to minimize pollution discharged. We must design equipment that can absorb pollution peaks due to tourist numbers.
 - ➔ Reduce noxious odors: this is important for tourist destination;
 - ➔ Manage actively the wastewater system during rainy events to limit direct discharges of untreated wastewater into the sea. The sea has to be protected under all circumstances;
 - ➔ Treat industrial and toxic effluents;
 - ➔ Treat the waste produced by the wastewater system, such as sludge.

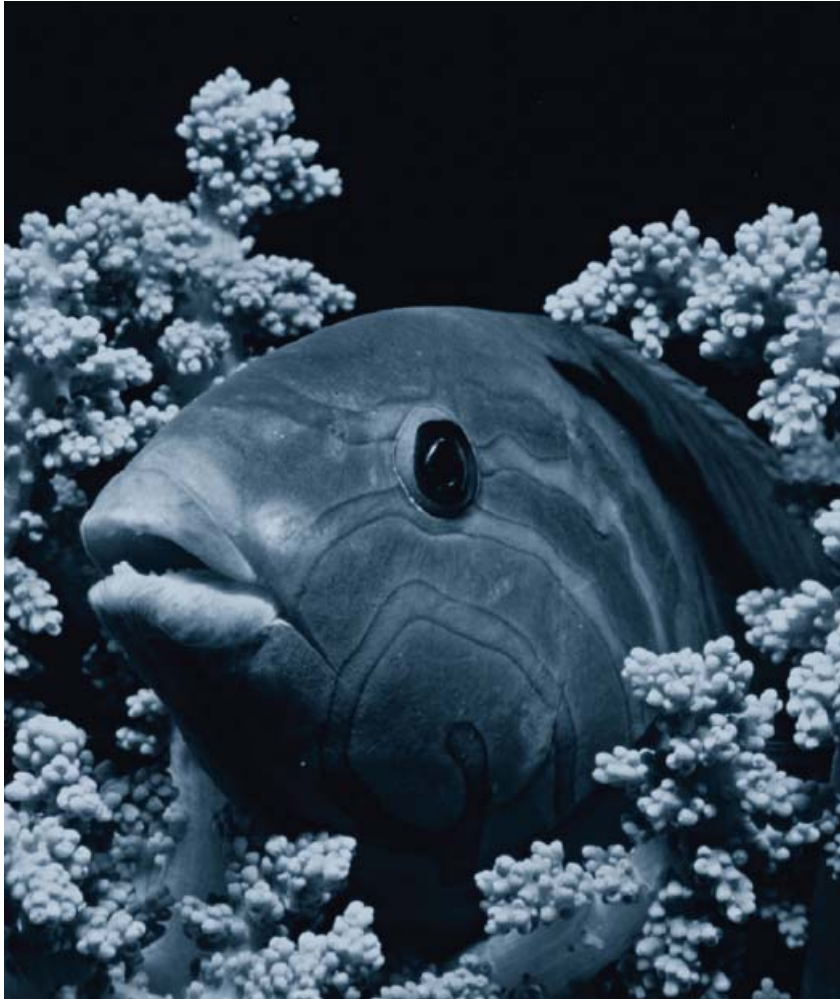


Consider ecological sanitation alternatives

- New approaches focus on closing locally the water cycles by reusing wastewater and the stormwater.
 - ➔ A US Federal Consent Decree required that Honolulu recycled 38 MI/d of its wastewater by 2001.
 - ➔ This city entered into a 20 year partnership with Veolia Water to design, build, and operate a 45,000 m³/d water reclamation facility to comply with this Decree.
 - ➔ Processes generate two qualities of water. One is a high-purity water that is sold to the power and petrol-refining companies. The other quality is for irrigation of golf courses and landscaping, in order to support the tourism industry.
 - ➔ This project saves freshwater and reduces pollution from the sewage being discharged to the sea in this exotic holiday location and key tourist resort.
 - ➔ Because the facility recycles its treated water product, it has no NPDES permit.



Part IV



Toward
a sustainable and
combined
management
of land and sea
in tourist destinations

Toward a sustainable and combined management of land and sea in tourist destinations (1)

- Manage in a coherent approach the coast and the sea. There can be no efficient management of bathing and fishing waters without efficient management of wastewater and stormwater on land.
- Plan sanitation coherently with urban development and economic activities:
 - ➔ Plan ahead in order to anticipate the impact of the city's development on the sewerage system and to safeguard the natural assets
 - ➔ Restoring the quality of coastal waters is a good thing. Conserving its quality in the first place is even better;
 - ➔ Implement at one time the 2 policies, tourism development and environmental infrastructure construction, which are usually dissociated in the time
- Nothing sustainable can be built without raising the awareness of users with regard to the linkage between tourism and wastewater policy.
 - ➔ Educating people at the value of water and at the costs of non treated wastewater. The cost of non sanitation is hidden and heavy (e.g.: Peru)
 - ➔ Publicizing the results obtained in terms of environmental impact
 - ➔ Promoting decentralized solutions for sanitation when it is adapted

High density territories require space-saving technologies

- Taiwan has a population density of 600 inhabitants per km²; the island of Nauru 635; Hong Kong 6,800; Singapore 7,500
- Monaco wastewater treatment plant built inside a building
- Marseille's wastewater treatment plant built under a soccer stadium in order to save space
- Capacity: 1.6 million equivalent population



Toward a sustainable and combined management of land and sea in tourist destinations (Continuation)

- **Checking the quality of bathing water is of the utmost importance**
 - ➔ Veolia Water and scientific partners such as IFREMER have developed a strategy of active beach monitoring based on enzyme analyses that make it possible to know, in just one hour, the quality of bathing water.
 - ➔ It allows to decide, in almost real time, whether to open or close beaches to swimmers.
 - ➔ In 2007, it was implemented on 150 beaches in France, Marocco and Germany. Bathing water are now under close surveillance.
- **If we are to build twenty-first century wastewater services, then we also need to take into account the impact of climate changes on sanitation systems:**
 - ➔ More frequent droughts will increase suspended solids deposits into the network and odours problems which are very inconvenient for tourism development;
 - ➔ More frequent heavy rains will lead to discharge more untreated wastewater and then pollutants into the sea, except if storage basin of stormwater are built or if the capacity of wastewater treatment plants is extended.



Part V

Financing wastewater policy



How to boost aid for increasing access to sanitation for those who don't get these services ?

- There are a great many obstacles to be overcome for ensuring basic sanitation, in particular the prohibitive price of connection and inadequate funding.
- According to the UNDP, governments should be earmarking at least 1% of their GDP to expenditure on water and sanitation. In reality, they are spending only half that.
- In developing countries, household resources will remain a critical source of investment for financing sanitation. But there are limits to what the poorest households can afford.
- Governments and aid donors should not be deeply averse to the use of subsidies for household sanitation.



Financing wastewater policy: beyond access to basic sanitation

- The habits to underprice water makes more difficult to overcome the costs financing barrier. Furthermore, there is a lower willingness to pay for sanitation than for drinking water.
- However, it is possible to find solutions to fund the creation of wastewater services. Chile is the only country in the world where full treatment of sewage effluent is being achieved without any public money, all financed by private investors.
- How to proceed?
 - ➔ internalize all externalities - that can be borne by users - in tariffs;
 - ➔ organize co-funding by rich and poor users, by city and countryside, by users and tax payers, by tourists and residents;
 - ➔ link wastewater management with other sectors. Developments in other economic sectors, such as tourism, may create opportunities to address sanitation at the same time;
 - ➔ fund not only investment but also maintenance. Spending millions of dollars in infrastructure is useless if the quality of maintenance is not coherent with the quality of investments.

Present the wastewater service as a driver of tourism

- Success often cannot be explained solely on the basis of the intrinsic attractions. The quality of tourism infrastructure, but also the one of environmental protection infrastructure, play a key role.
- It is an illusion to hope to boost tourism if sanitation facilities are not built. Managing efficiently the wastewater system makes a direct contribution to preserving tourism.
- Wastewater services restore or reinforce the attractiveness of territories. In Tangiers, which was until recently a top-tier tourist destination, compliance with the highest environmental standards will support the economic development
- Wastewater services contribute to consolidating the whole local economy, not only tourism. They are an actor in redistributing wealth to local stakeholders.

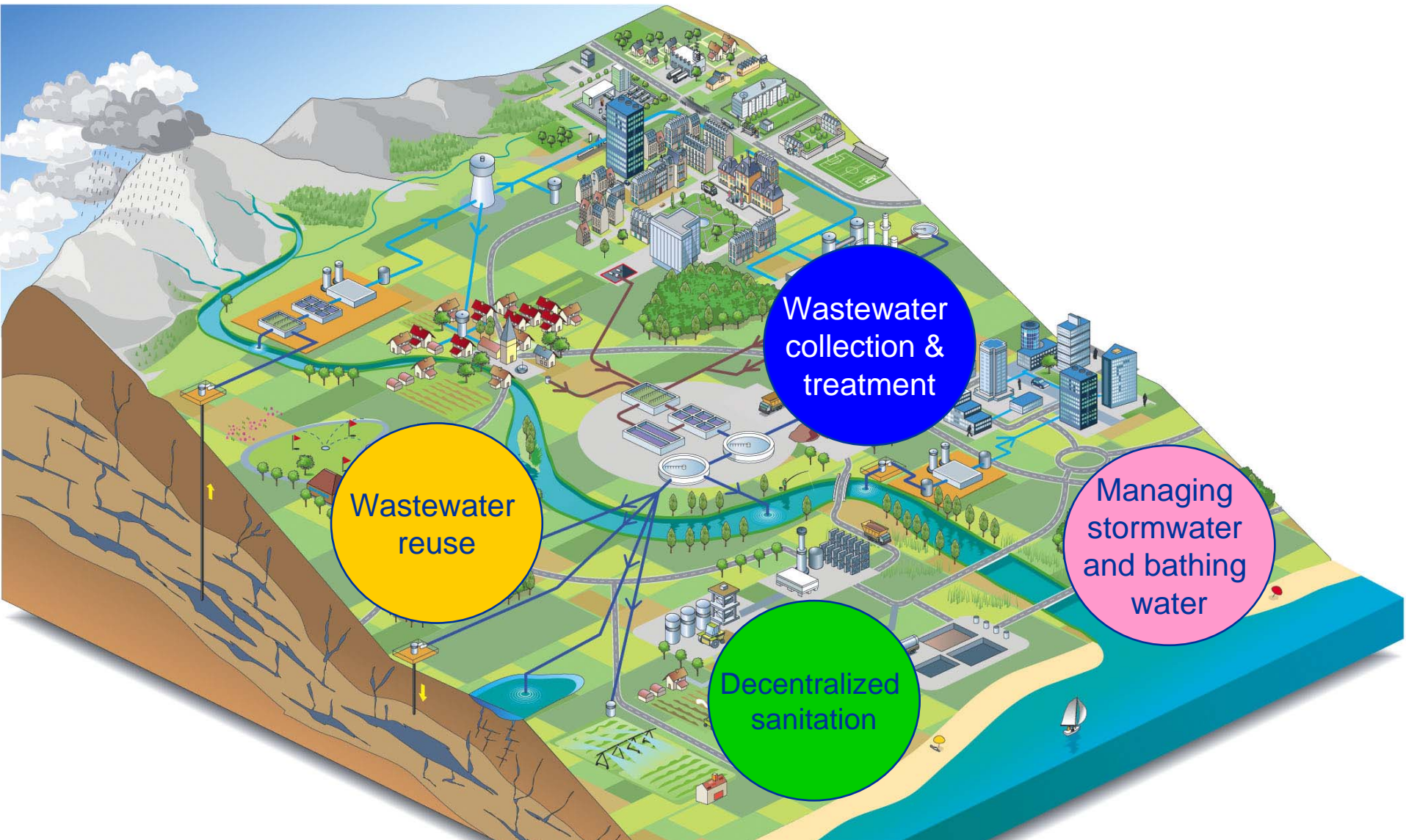


Redistribution of wealth created in Tangiers and Tetouan via Amendis since the beginning of the contract cycle (2002-2006)

Approx. 80 % of the wealth created by Veolia Water concession in Tangiers and Tetouan is redistributed locally.

				Redistribution to stakeholders (in M€)		% of total sales
Total sales M€ 651	→	Total sales distributed to stakeholders M€ 506	→	Employees	128.7	19.7 %
			→	Suppliers and service providers	355.7	54.5 %
			→	Tax administration	6.7	1.0 %
			→	Banks	8.3	1.3 %
			→	Shareholders	6.8	1.1 %
	→	Total sales available to the company M€ 145	→	Investments	144.8	22.4 %

Conclusion



Conclusion

- Pollution does not have to be inevitable. But lastly, the main threat to our seas is inaction. The future may be worrisome, but nothing to fear if we prepare for it well.
- Tourism cannot succeed in an environment that fails, in an environment that is polluted. If a local authority position itself at the top-of-the-line of tourism market, sanitation infrastructure should although be positioned at the top-of-the-line of environmental protection.
- The quality of rivers and seawater is always a true measure of the wastewater policy because they cumulate the effects of pollution. In the end, coastal waters are the ultimate judges of the overall effort made by public authorities to deal with the problems of wastewater.



Thank you for your attention

