

Abstract — In order to feed the upcoming population increase to 10 billion inhabitants by 2050, Via Marina proposes a solution providing urgently needed fresh water. This solution is at the same time efficient, permanent, politically acceptable, environmentally sustainable, technically viable and financially competitive.

Keywords — Water; Food; Development; Peace

1. The World Problem

Water availability is all over the world one of the most important problems of the 21st century in the face of decreasing “offer” due to Climate Change and increasing “demand” due to population growth; it also fuels political and social unrest with security and migratory negative consequences. Finding new ways to make water available where needed is therefore a pressing necessity. Particularly for agriculture which represents approx. 80% of total uses.

2. Via Marina's Solution

SubmaRiver, this disruptive, albeit down-to-earth, innovation consists in:

- 1) taking water at the mouth of a river for all uses or from outfalls of large coastal cities for agriculture.
- 2) transporting this water in large quantities and over long distances by an underwater flexible pipe: SubmaFlex.

SubmaRiver has three advantages:

- 1) It always induces a strong socioeconomic development as well as an overall well-being (socially responsible).
- 2) A small portion of the remaining discharge at the mouth of any river can be abstracted without causing undue hardship to the downstream and to the surrounding sea eco-systems (environmentally sustainable).
- 3) The environmental expense of treating waste water before discharging it into the sea can be turned into a productive investment by reusing it (circular economy).

3. Benefits

- It supplies water with great regularity over long periods of time in quantities equivalent to dozens of desalination plants in one project, thus easier to implement.
- It consumes about 5 to 10 times less energy than desalination (important in terms of GHG emissions), therefore environment friendly, “green”, “cleantech”.
- It costs about 30 - 50% of onshore water transfers, hence affordable by agriculture ensuring food security.

This cost competitiveness leads to attractive projects both in terms of CAPEX and OPEX in a large array of applications (OTEC, SWAC, outfalls, intakes, ...) beyond the largest market: SubmaRiver.

4. Some Technical Aspects

Unique characteristics of the SubmaFlex pipe are:

- very large diameter (up to 4m)
- flexible and collapsible, guaranteeing its full integrity in the subsea adverse pressure conditions and it can reflate when duly pressurized
- easy to lay offshore, ensuring a fast and inexpensive installation (up to 8km/day)

In all oceans, there have been thousands of kilometers of oil and gas pipelines laid for numerous decades and dozens of thousands kilometers of communications cables for over one century.

5. Financing

Via Marina has already invested approx. 5 MUSD in its technical development “on paper”: technical viability and financial competitiveness have been confirmed.

Our preliminary market research has revealed strong interest in many countries for potential projects using our system: Chile (widely publicized – see www.aquatacama.com), Peru, California, Texas, Morocco, Tunisia, Egypt, Spain ...; proof of a wide market acceptance.

Via Marina is today at a turning point in its history and launches its series B funding:

- Further technical developments consist in implementing a Proof of Concept test and the Qualification Plans of both SubmaRiver and SubmaFlex (about 15MUSD).
- These will also strongly support future commercial development of SubmaRiver projects (10MUSD).

Both endeavors will allow progressing safely and quickly along the sequential project stages leading to the actual Construction of a first SubmaRiver project.

This investment (25MUSD) is significant but in line with the targeted irrigation infrastructures (x00MUSD).

6. History: Roadmap To Success

Step 1: Before 2004: Original idea by Felix Bogliolo, initial technical investigations, first parametric model: CAPEX & OPEX calculations

Step 2: 2004 to 2011: Association with four individual partners; continuation of technical investigations, new patents, completion of technical partnerships, commercial contacts (first letter of expression of interest from Minister of Public Works of Chile in June 2009); June 2007, first income for a mini Feasibility Study of a confidential project in France; search for Series A funds (July 2007: named startup of the year by French Senate and ESSEC competition);

Step 3: 2011 to 2017: Vinci Group takes 50.01% of Via Marina's equity; completion of technical investigations, new patents; continuation of commercial contacts; first Feasibility Studies: Aquatacama project in Chile and also France; design of Proof of Concept test and Qualification Plans of both SubmaRiver and SubmaFlex as well as future commercial development plan;

Current situation: SubmaRiver is at the same time technically viable, environmentally sustainable and financially competitive; identified projects are politically acceptable; exit of Vinci Group (not part of core business strategy) and some individual partners (retired); **search for 25MUSD Series B in order to finance technical development and sequential commercial plan.**

Long term vision: after Series B funds injection: implementation of Proof of Concept test and Qualification Plans of both SubmaRiver and SubmaFlex; implementation of an aggressive but standard funnel type commercial strategy for reaching, in 3 – 5 years, Construction stage of first SubmaRiver project under some type of PPP; Via Marina is an interesting profitable investment opportunity, beyond its appealing political, social and ecological characteristics.

See www.via-marina.com



« **Water, Via Marina: Development!** »

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