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## CROSSING THE MEDITERRANEAN

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The European approach to mobility infrastructures has so far addressed the development of transport in the northern European area. It must be accompanied by the idea of putting the Mediterranean and the countries overlooking it at the center of a new vision. On this line the hypothesis of a stable connection moves -between Africa, Europe and Asia- recovering the "Silk Road" also through permanent connections such as TUNeIT -between Italy and Africa- GRALBeIT - between Greece, Albania and Italy; bringing the Messina Bridge back into play, a project already defined but set aside. TUNeIT is a hypothesis already studied and revisited by ENEA, GRALBeIT is at an embryonic stage, but to which we begin to pay attention.

**1.** In this historical moment, with the problem of flows coming from Africa, a link between Africa and Asia that passes through Southern Italy seems a paradox. The European infrastructural schemes end in Gibraltar and in Sicily. But Africa is strengthening its infrastructural apparatus in the direction of Gibraltar: in this hypothesis the commercial traffic by land would develop only through the Strait of Gibraltar. Southern Italy also needs to strengthen and improve its infrastructure network, which is not very attractive due to the lack of attention paid to the South in the decades preceding globalization. TUNeIT, Ponte di Messina and GRALBeIT would relaunch the South in a transversal way, from Sicily to Puglia, passing through Calabria and Basilicata. The Messina Bridge may appear to be a weak hypothesis because it is not substantiated by sufficient motivations: but with TUNeIT and GRALBeIT it would become an important intercontinental link, a fundamental crossing area between Africa and Asia, a link with northern Europe. The employment advantages and the interest for unpublished infrastructural works on the sea at world level must be added.

The TUNeIT system, GRALBeIT, Messina Bridge is not just about the transport of goods and people: it is a way to connect places of culture scattered along a path that as a whole connects Cape Town with Beijing.

These connections would constitute a generator of conditions to redevelop the infrastructures in weak areas and restore economic breath to now depopulated areas. The result would be the creation of new communication scenarios and the strengthening of relations between the countries involved, of new development and collaboration programs between regions of Europe and Africa, the attraction of multiple investors within new infrastructures and / or in their ancillary industries. A connection between Tunisia and Sicily would give rise to a transcontinental territorial Europe-Africa continuity, like other works created to connect Europe and Asia (tunnels and bridges over the Bosphorus), Asia and Africa (doubling of the Suez Canal), as well as the stable connection between Africa and Europe in the Strait of Gibraltar.

**2.** TUNeIT was born from a project proposed by ENEA some years ago in the form of a tunnel, revisited combining tunnels, suspension bridges and artificial islands for a complex of 140 km between Sicily (Mazara del Vallo) and Tunisia (Capo Bon). At the beginning (2015), almost in provocative terms, TUNeIT hypothesized the multiple repetition of the Messina bridge project, creating artificial islands to be used also for tourist or research purposes, reusing materials coming from the excavation, where to place the system operation services.

These islands, at a latitude that has high levels of insolation and wind, would also be the occasion for the creation of electricity production sites to be exported to the mainland and places of experimentation for innovative technologies. Also with regard to waste, the project hypothesizes the study of alternatives for the correct management of the collection aimed at energy production and the creation of green corridors, water desalination plants and storage tanks, networks and fresh water channels, distribution stations, solar and wind energy parks, high voltage power lines, underground stations, pipelines and natural gas networks.

The opportunity also arises for new energy and multimedia telecommunication connections or electrical systems in connection with the two companies (Tunisian and Italian) and the presence of two or more power plants in the two or more artificial islands.

The islands, in addition to serving as terminals of the bridge with multiple spans, could accommodate commercial activities either at the service of the structure or not, above all of a tourist-commercial type, with marinas for mooring and boat stops. For the connection with car traffic, inter-modality is relatively easy and can include shuttle cars for transporting vehicles combined with hydrofoil rides. In this case the freight and passenger traffic would both be present with 2 railway lines, while the driveway would be served by a dual carriageway for each direction of travel and relative emergency and service lanes; the trains would travel in the central lanes, the traffic roads are outside. The development hypothesis, given the morphological and tourist-archaeological potential of the sites, is also leading us to think of a mixed bridge-tunnel solution.

A semi-submerged tunnel would have the advantages of prefabrication in "dry docks" with transport by sea and subsequent sinking. For bridges, sustainable solutions should be studied with "large spans" from 500 to 1000-1500 meters. On the Tunisian side, the environment is almost all to be designed, built, and urbanized: this favors the study and design of new networks.

The Tunisia-Sicily connection would thus be not only of a commercial nature: it would put into new contact deeply different worlds and cultures.

### **3.a Inland connection**

GRALBeIT, the stable connection between Italy, Greece and Albania, is a hypothesis at a less advanced stage than the previous ones: from a first reconnaissance, Otranto and Valona appear to be optimal cities since in their hinterland there are adequate infrastructural systems.

On the Italian side, there is a "transversal axis" that starts from Villa San Giovanni, from where you get onto the A2 motorway - Mediterranean motorway - up to Tarsia Nord.

The railway line connects Villa San Giovanni with Reggio Calabria, Taranto, Brindisi, up to Lecce: the Lecce-Otranto line, presently managed by the local railway company "Ferrovie del Sud-Est", has still to be improved.

The connection and junction with the road and railway infrastructures on the Albanian territory is more complex.

The hypothesis being studied envisages the connection of the bridge in the Zvernec area, in the North-West of Valona, a context that is mainly rural, which makes the construction of road and railway infrastructures easier.

The Albanian railway line, managed by the HSH company (Hekurudha Shqiptare), has Scutari as its Northern terminus, almost on the border with Montenegro, and Valona as its Southern terminus. The network -which has the same gauge as in Italy- is today the subject of major investments.

### **3.b The bridge**

The infrastructure, south-east of Otranto, stretches for 85 km on the Adriatic, until it reaches Valona. The profile of the Adriatic seabed in the area affected by the connection is particular. As a typological configuration we plan to repeat the TUNeIT scheme, then bridges, artificial islands, tunnels, and then produce new artificial islands and enter the mainland, again with a system of bridges.

Given the depths involved, up to 895 meters, we will have to resort to off-shore platforms and floating islands in the evident evolutions of a "visionary engineering" that creates apparently insurmountable constraints and opportunities for invention capable going far beyond today's imagination.

Considering the constant acceleration of technological innovation, in the coming decades construction techniques will be likely to evolve to find appropriate solutions. The proposed scheme is the following.

## 4. Landscape as a device for controlling the quality of infrastructures

The Capo Bon-TUNeIT- Marzara del Vallo- Messina-Ponte-Stretto-Reggio Calabria-Otranto-GRALBeIT-Valona configuration will be the multi-modal axis that unites Africa Europe Asia through a differentiated system of suspension bridges, artificial islands, tunnels, roads, highways, railways. To imagine it as a pure technical-performance crossing axis would be a failure at the cultural level.

By privileging landscape criteria, the project can have a great cultural impact. The need to tackle the infrastructure project thus identifying qualitative criteria of excellence emerges, evaluating what it means to generate a new center of gravity in the Mediterranean, from the symbolic point of view and as to cultural and economic exchanges, and also as an opportunity to activate forms of regeneration in Southern Italy.

Hence a "transversal axis" that declines the concept of quality in the emerged parts (bridges and artificial islands), in which it is possible to offer a new meaningful image of the Mediterranean, through a linguistic code in which in the Venustas it recognizes the new idea of crossing; in the parts on the mainland (connections between the bridges of the coastal cities and the entire infrastructure and road network that goes to Marzara del Vallo in Otranto), to find conditions of coexistence, compatibility between social, economic, ecological, urban, cultural infrastructures and the landscape of the places crossed.

Through the principle of the "redevelopment flywheel" effect that we can find in urban microcosms -it happened for the Sea Bridge in Pescara, a catwalk that has become the symbol of Abruzzo- TUNeIT and GRALBeIT must not only be an expression of technical excellence, but they must be able to propagate that external quality of the infrastructure project capable of becoming the interpreter of territorial redevelopment processes. It is a bet that can generate cultural value by integrating the technical field (for bridges and islands) and the ability to recover the sense of the past (linking the infrastructural axis with the values of the place).

In this direction the landscape is an "ecological device", so defined within a hypothetical Landscape Scientific Society [Culatti 2018, 167], it can be used "for the enhancement, transformation and sustainable development of settlement areas, non-urban areas and open spaces".

This means that the design criteria of the entire axis must include perceptive themes, environmental, historical, cultural, anthropological, geographical, ecological, economic and social themes. The whole will be a "device" capable of making the intercontinental crossing work, but at the same time guaranteeing the use of places that must be visited, enhanced in the sense of the "European Landscape Convention", activating knowledge processes, calibrating accessibility according to the fragility of places.

TUNeIT and GRALBeIT face a process of acculturation, processes of exchange, acquisition and transmission of cultural traits. Never as in this case the concept of physical, administrative and cultural "boundary" must be questioned, included and communicated. It is a matter of shaping and beginning to codify an unusual path: Italy is no longer a *peninsula* but a *central region* between two continents

### bibliographie

- Culatti M. (2018) *Bridgescaping. I ponti del paesaggio*, Roma, Aracne Editrice
- Culatti M. (2016) *Per una valorizzazione del Paesaggio, La fabbrica delle Conoscenze*, a cura di O.Carpenzano, E.Raitano, n.23s/2016
- Culatti M., Martini V., Siviero E. (2016) *L'Africa e una rete infrastrutturale da completare, riqualificare collegare all'Europa*, Trasporti e Cultura n.44
- Culatti M. (2014). *Nuovo baricentro mediterraneo*, Galileo n.216s
- Dioguardi F. (2018) *GRALBeIT: collegamento stabile tra Puglia e Albania. Prime Valutazioni* (tesi di laurea Facoltà di Ingegneria - Università Telematica eCampus, rel. prof.E.Siviero; correl. prof.P.Colonna, prof.M.Culatti)
- Siviero E., Nicolin, R. (2004) *Tra Scilla e Cariddi un ponte abitato sullo Stretto di Messina*, Le Strade, n.10
- Siviero E. (2017) *Connessioni mediterranee e Via della Seta, tre continenti si uniscono*. Conference de Presse, Senato, 05.10.2017
- Siviero E., Ben Amara A., Guarascio M., Bella G., Da Fonseca A., Slimi K., Zucconi M. (2015) *TUNeIT - towards a global World, Multi\_Span large Bridges*, London, Taylor & Francis Group
- Siviero E., Culatti, M., Martini V. (2017) *Mediterranean Bridging:TUNeIT e GRALBeIT*, in Galileo n.231
- Siviero E., Guarascio M., Martini V. (2016) *Intercultural dialogue:TUNeIT Mediterranean Bridging, Carnival in the world, Dialogue among Cultures*, 1st International Symposium, Florence-Viareggio, February
- Siviero E., Martini V. (2016) *Dialogo interculturale:TUNeIT Mediterranean Bridging*, in Trasporti e Cultura n.44
- Siviero E., Martini V. (2017) *Mediterranean Bridging:TUNeIT and GRALBeIT, towards a stable connection between Africa, Europe and Asia*, in Compasses, n.26

### sitographie

- <https://issuu.com/prof.enzosiviero>
- [www.rmei.info/index.php/en/](http://www.rmei.info/index.php/en/)
- Storie. Enzo Siviero - Radio Vaticana.it.radiovaticana.va/news/2015/01/26/storie\_enzo\_siviero/1119358
- [www.youtube.com/watch?v=y0HLH6dFPnc](http://www.youtube.com/watch?v=y0HLH6dFPnc) (L'uomo del ponte tra Sicilia e Tunisia)
- [www.ansamed.it/ansamed/it/notizie/stati/tunisia/2017/09/19/tunisia-un-ponte-per-la-sicilia-lanciato-concorso](http://www.ansamed.it/ansamed/it/notizie/stati/tunisia/2017/09/19/tunisia-un-ponte-per-la-sicilia-lanciato-concorso)
- [tuneit\\_b5a14c98-8678-4531-af37-2bc784182965.html](http://tuneit_b5a14c98-8678-4531-af37-2bc784182965.html)
- [www.agenzianova.com/a/59e25f6bb1b605.35276368/1658253/2017-10-05/italia-tunisia-presentato-al-senato-concorso-realizzazione-di-un-ponte-con-sicilia-2](http://www.agenzianova.com/a/59e25f6bb1b605.35276368/1658253/2017-10-05/italia-tunisia-presentato-al-senato-concorso-realizzazione-di-un-ponte-con-sicilia-2)
- [www.ansa.it/campania/notizie/2017/10/23/medda-crisi-opportunita-atenei-alleati\\_28c4c8b5-18b3-4e64-be83-c5d894b120e0.html](http://www.ansa.it/campania/notizie/2017/10/23/medda-crisi-opportunita-atenei-alleati_28c4c8b5-18b3-4e64-be83-c5d894b120e0.html)