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Volume

THE SYSTEM*

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THE SYSTEM*

'The system' is oft lamented to little effect. Aside from something out of our hands, what is 'the system', anyways? And how out of our hands is it, really? In this issue of Volume, we're collecting a series of definitions, maps and strategies for intervening in it.

* **leveraging** To position ones efforts within a system so that its outcomes are multiplied by the system itself.
* **short-circuiting.** To modulate resistance so that either excessive or insufficient current flows.
* **disrupting** To develop alternative processes and replace existing technologies.
* **infecting** To introduce an alien and viral presence.

THE ROAD TO PROGRESS is one that is literally seen to be paved by asphalt: from country backwaters to spanking new industrial and export processing zones awaiting development.

THROUGHOUT THE DELTA , 2-3 meters of earth are regularly heaped on the territory in an attempt to create stable ground for on what is essentially an ever-moving foundation of mud. Road infrastructure is extremely expensive in the delta, a landscape with little bearing capacity.

BRUNO DE MEULDER AND
KELLY SHANNON

POLYSYNTHETIC RECLAMATION

IT TAKES TIME TO TRANSLATE THE GENERICNESS OF INFRASTRUCTURE TO THE PARTICULAR. BUT WHEN INFRASTRUCTURE IS BEING ROLLED OUT AT THE SCALE OF A COUNTRY IN AN ACCELERATED PROGRAM OF NATIONAL DEVELOPMENT, THERE'S NO TIME, WHICH IN ECOLOGICALLY SENSITIVE PLACES SUCH AS VIETNAM, BECOMES PROBLEMATIC. WITH A SLIGHTLY LONGER-TERM VIEW ON THINGS THOUGH, DEVELOPMENTAL FORCES CAN BE HARNESSED TO CULTIVATE NOT JUST FOR ECOLOGICAL RESILIENCE BUT ALSO ECONOMIC PROSPERITY.

Until the relatively recent unleashing of unprecedented development in Asia, few geographies and eras surpassed the intensive accumulation of infrastructure from the West's industrial boom during 19th and 20th centuries. From steam engines to canals, railways and telegraph services; from road networks and water distribution to highway systems, air- and seaports; from sewage and water treatment plants to energy grids, gas pipes and cable networks; from irrigation networks to dykes, polders and systematic coastal protection devices; each of these once innovative systems delivered novel services or opened new possibilities – by and large by anchoring themselves on pre-existing systems. At their best, they organize a new, complementary division of labor or, in one way or another, exploited synergies.

Different infrastructures are, for reasons of convenience or purely out of necessity, most often tied to each other as bundles. Over time, these amalgamations became what is sometimes characterized as polysynthetic constructs, new hybrid constructs that are not only more than the mere sum of their civil construction parts, but also acquire a civic quality. They become what Lewis Mumford long ago labeled polytechnic,[1] combining different technical devices with an transcendental role as public space; open signifiers that allow for a variety of practices, appropriations, subversions that freely reinterpret and resignify. In a polysynthetic reality the separate mono-functional devices that generate the infrastructural amalgamation don't necessarily lose their role, but this role simultaneously becomes part of a larger multitude of uses and practices that flourish, often by inverting, adverting, circumventing, subverting or otherwise reorienting the original intentions, codes and rules.

The interplay between infrastructural layers generates an ever increasing complexity that results in contradicting effects: an over-sophistication that can jam or the system on the one hand, with unprecedented performance obtained by shortcutting different elements on the other. Despite such apparent agility, the adaptation from mono-functional industrial conditions to a multi-functional postindustrial one of complex of infrastructural systems is lengthy and often a painful restructuring process. The capacity, needs and/or energy to invest in new infrastructures or systems are often lacking. More often than not, ambitions are reduced and a web of technical, socio-economic and political decisions tend to lead to either the adaptation and optimization of existing structures, or their downsizing or decommissioning to be replaced by more decentralized systems.

In the Asian context, this situation is very different. This is surely the case in Vietnam, which is for the past few decades played a comet-speed catch-up game with modernization and globalization after its relative degree of political and economic isolation, stagnation and destruction caused by decades of war and its political aftermath. The accumulation of infrastructure has seemed

to only have recently begun, and the country is embarking on the task with unparalleled intensity throughout its rural and urban areas alike. The State is embroiled in a fury of investment in instant infrastructure building – highways, agricultural-scaled roads, harbors, airports, gas pipes, locks and dykes. There is not much to lament with regards to time, since there is gradual adaptation in place, with slowly occurring impacts between systems and the organically evolving interplays between infrastructures. They are omnipresent and are mostly not – to use Mumford's categories – polytechnic, but purely monotechnic.

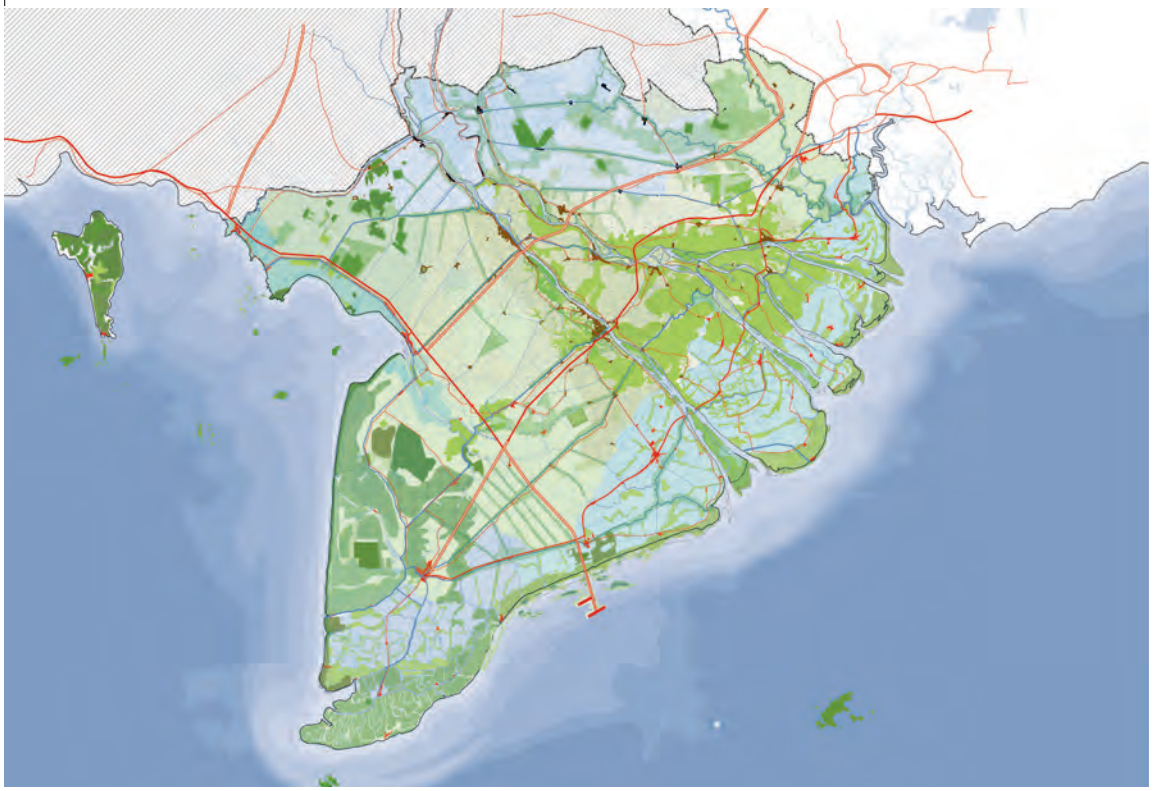
All of these infrastructural systems are all planned as pure, abstract engineering nets, as if the territory is a homogenous *terra nulla*. The disregard and assumed quality-less 'as found' condition for the infrastructure stands in stark contrast to the imposed, limit-less feats of its engineering, itself considered capable of instantly delivering coherent, complete and perfect infrastructural packages thought to produce the territory. It goes without saying that in the infrastructural development plans supported by the World Bank, Asian Development Bank and the like, notions as incompleteness, entropy or damage don't appear. The territory is smooth. Everything appears evenly. Resistance isn't part of the vocabulary. Development follows flows, and so generic sameness is on the way to everywhere.

When applied to a remote Vietnamese region like the Mekong Delta, the most southern and 'least developed' part of the country, this all becomes rather peculiar. The region is now receiving massive doses of the prototypical infrastructural recipe. Generic development beckons, and soon the authentic qualities of the Mekong Delta could be flooded with the mediocre and hollow sameness that comes with the reaching of new development levels and ever more intense integration into the networks of globalization. Its savior could be that quite literally its nature resists. The fragile nature of the land – the gigantic quagmire of land betwixt by water – makes generic infrastructure difficult, expensive, time consuming and frail, as roads subside, embankments erode, humidity penetrates, waterways silt and water reservoirs acidify. At the end of the day, the region's monumental efforts to overcome the forces of nature are never adequately realized and erode before completion.

The plan for the Mekong Delta Region,[2] if revised, could seize the opportunity of climate change as a force that reconfigures territory, infrastructure and development. This proposed revision is realigned with the evolving characteristics of the territory. Its infrastructure is reconceived in light the vulnerability of the landscape with a deliberate choice to not build new, extremely expensive infrastructure where sea level rise and an increased frequency and severity of monsoon rains will inundate the land. A number of highways planned by the Ministry of Transportation would simply be suboptimal investments if the lands they pass through are going to be flooded by 2050. The plan therefore proposes to create connections not as a homogenous grid of equal access across the territory, but rather makes a strategic articulation of highways. The proposed TransAsian Highway, which travels from the East Sea through Cambodia, onto Thailand and finally splitting to Malaysia and Myanmar, is realigned perpendicularly to complement the main spine. Further from the spine are more modest feeders, which recuperate existing 'national roads' that, where necessary, are upgraded and modernized, along with the upgrading and modernization of their parallel canals.

The waterways and national roads, their respective interstices and adjacent lands, literally superimpose a man-made framework that unites the territory. As such, the section of this recurrent sequence is of the utmost importance; it not only organizes the water flows and road mobility, but simultaneously articulates the management, regulation and protection of flood waters and erosion prevention. Planted segments alternate with spontaneous vegetation and old constructions with brand new investments. The proposed infrastructure is truly polysynthetic, merging the technical with civic and the economic with ecological performances. Throughout the Mekong Delta, this is done in a way that balances order and spontaneity, regularity and messiness, fixity and openness, regulation and freedom – all while modernizing and upgrading the delta's polysynthicity.

The region's urban character is intensely embedded within nature and stems from the density that comes with the labor intensity of rice cultures. The omnipresence of trees on the constructed higher land makes one conclude that the built landscape does not just include the roads and other conventional elements of infrastructure but also the land itself, which is in fact the main infrastructure and systemic support for all activities of humankind in the delta. The Mekong Delta validates, more then any of the prolific theories that circulate



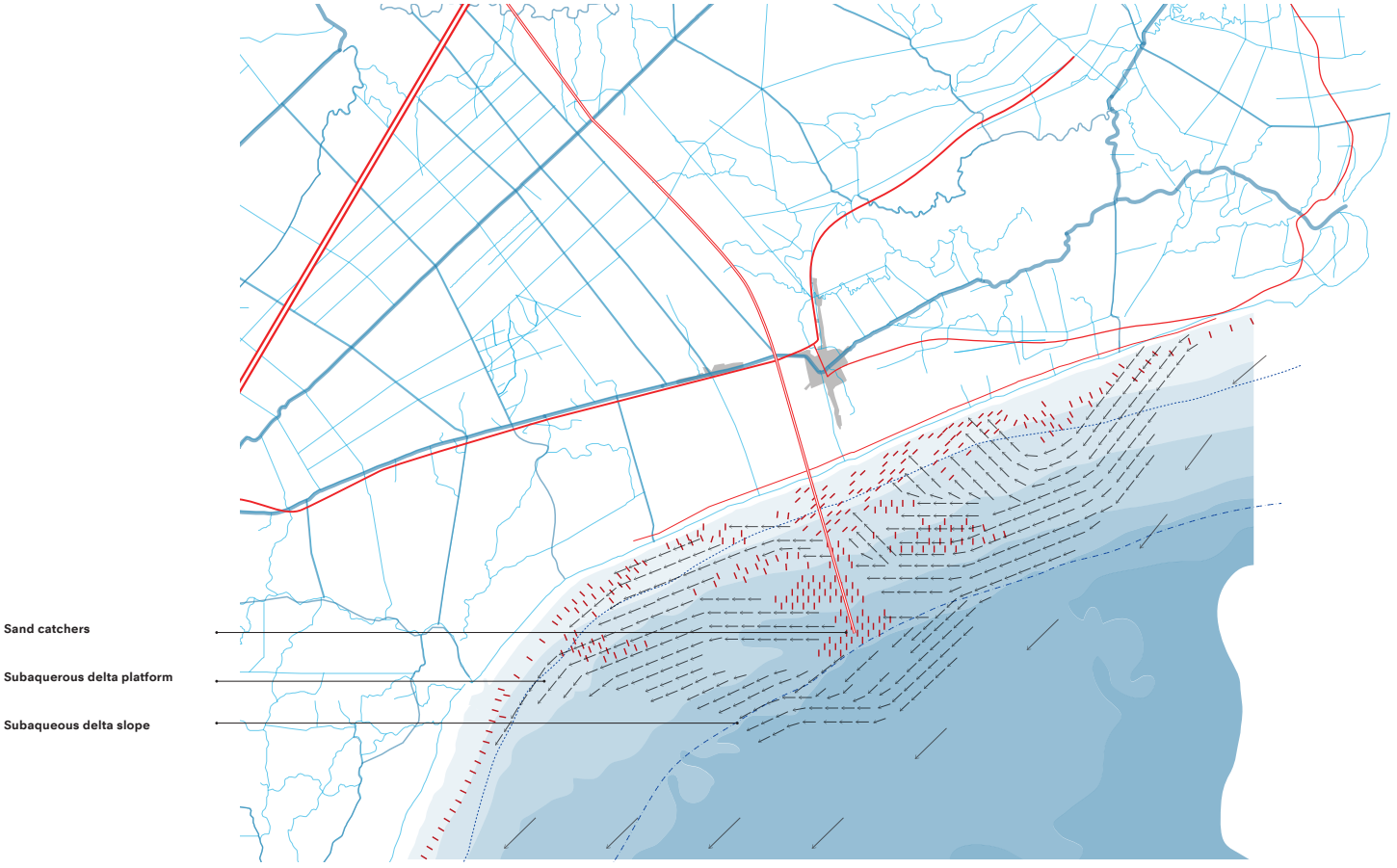
PROPOSED REVISION TO MEKONG DELTA REGION PLAN
Infrastructure and development are realigned to take advantage of climate change and the vulnerabilities of the landscape. The delta is optimized as a productive landscape a new state-of the-art polysynthetic reclamation is conceived on the East Sea.

around it, the proof of landscape urbanism *ad absurdum*.

The flagship project for new infrastructure in the revised Mekong Delta Region plan is located in the southeastern coastal province of Bac Lieu (population 876,800). The project drastically reformulates current infrastructural practices. It assembles a number of the Vietnamese government's major projects, including tidal and wind energy parks, a central international airport for the Mekong Delta, an international deep sea port, the start of the TransAsian highway and the building of the first defensive sea dyke.

The coastal project for Bac Lieu attempts a greater interplay with the natural processes existing in the delta in an attempt to integrate these flagship projects with and generate synergies between one another, increasing coastal protection while creating a new type of land reclamation program. Land reclamation in the Mekong Delta is not new; it has for long been a necessary and on-going process. For well over three centuries, there has been the continual transformation of the deltaic swampy quagmire by canal dredging, from a thriving *river-water civilization,*[3] into a modern socio-hydrocracy ruled by engineers and large-scale regulatory infrastructure.[4] With the coastal project, reclamation is conceived anew – neither from dredging inland or land/water thresholds nor artificially making land (which implies taking land from elsewhere) and equipping it with networks. The current Mekong Delta Regional Plan proposes to enhance a controlled and increased sedimentation along the East Sea in order to drastically scale up the natural land winning process. The Mekong River is among the top ten in the world in terms of sediment discharge – an astonishing 160 million tons per year into the East Sea due to its complex bathymetry and tidal systems.

The proposed reclamation works with the natural sediment dynamics in the Mekong Delta Region. It capitalizes on the flows of discharge to build land. The systematic implantation of obstacles (breakwaters) on the subaqueous delta platform would break the existing streams deposits. As such they are already efficient coastal protection devices. Moreover, they slow down the water current as a whole and halt it locally. This concentrates sedimentation, thus inducing an accelerated formation of sand banks that ultimately results in gaining land, which can be further consolidated by the systematic planting of mangroves. This will not only strengthen the



RESISTANCE WITH SEDIMENT CATCHERS
The Mekong deposits 160 million tons per year into the East Sea, part of which disappears in the deep sea beyond the subaqueous delta slope, but a substantial component of which deposited on the subaqueous delta platform. Local flows would be resisted with sediment catchers, which in turn would begin to accumulate and, over time, build islands. An entire reclamation project would be developed through natural processes, spurring twenty-first infrastructure in-sink with the environment.

POLYSYNTHETIC RECLAMATION
A hybrid set of programs would conquer the East Sea – from a bold international sea and airport to floating urban areas and renewable energy structures.

ecological structure of the Mekong Delta, but also increase its resilience in case of storms.

The proposed processes can be compared with the well-know techniques of dune formation and reconstruction through the placing of windbreaks and their consolidation through succession and adapted plants. The main technical issue of the proposed land-gaining program defines the design of the 'obstacles' (breakwaters): their distribution pattern set in relation to dominant water currents and scale and distance between obstacles. The optimization of these parameters would steer a process that can be adapted to the dynamics of the sea and desired levels of land formation. These variations would allow for the creation of a variety of habitat conditions for shrimps, oysters and other seafood, fish, birds, plants, wood, etc. The effects of these breakwater obstructions could also include new waterways.

This principle of accelerating land creation might appear farfetched, but in the end it merely capitalizes on the natural processes that exist throughout the region. When it comes down to it, the Mekong Delta is one gigantic, unstable mud plain that oscillates between being ground and water, land and sea. There is no real or precise shoreline, but rather an entire territory that could be considered as one extended shoreline. The sea dyke that was previously planned is proposed to be replaced by a larger territory with a substantial, ever growing depth. The heroic 'hold the line' paradigm of dykes is exchanged for a new landscape that, by almost replicating the Mekong Delta itself, works as an infrastructure. It protects from the sea and acts as a filter between salt, brackish and fresh water all the while supporting a wide range of activities. A mosaic of appropriations anchor themselves in the natural conditions, ranging from new ecological shrimp farms and tidal energy installations to fisherman villages and other sustainable coastal settlements.

As already mentioned, the landscape will also host a few of the inevitable flagship projects of the Vietnamese government: the region's international airport, wind farms and a deep-sea port. These are, in the revised plan, consciously built offshore. This way they neither require any land expropriation nor imply the loss of valuable productive land (which still remains a main asset of the Mekong Delta). They will instead work as mega-breakwaters and are consciously designed and positioned to accelerate a local process of land reclamation that in the long run will absorb them. As the landscape absorbs these programs, they simultaneously becomes the infrastructure that gives the necessary support to ecological development and the various water/land variations that generate the mosaic of appropriations enumerated earlier. The roles of conventional infrastructure and the new landscape induced here are inverted. Landscape becomes infrastructure, resistance becomes source; bypasses act as parallel avenues to other futures than the over mechanized and centralized territory of the postindustrial era. It would be a new and self-renewing ecology that, from the onset, instantly supports a multitude of activities. Simple technical interventions induce a majestic and varied world; infrastructure for the twenty-first century.

1 Lewis Mumford, *Technics and Civilization* (New York: Harcourt, Brace & Company, Inc. 1934)

2 Revision of the Mekong Delta Region Plan 2030-2050 is an ongoing work that began in November 2014. RUA, Research Urbanism Architecture, is the international consultant to SISP (Southern Institute for Strategic Planning). RUA and SISP were commissioned by the Ministry of Construction in Hanoi, Vietnam. The RUA team is lead by Bruno De Meulder and consists of Kelly Shannon, Claudia Rojas Bernal, Christina Hood, Donielle Kaufman, Michael Waibel, Tracy Collier and Eric Heikkila. The second phase, beginning January 2016 the RUA team was joined by Molly Fancler and Superjacent (Kelly Majewski, Anthony Paradowski, Christopher Torres).

3 David Biggs, *Quagmire: Nation-Building and Nature in the Mekong Delta* (Seattle and London: University of Washington Press 2010)

4 Simon Benedikter, *The Vietnamese Hydrocracy and the Mekong Delta: Water Resources Development from State Socialism to Bureaucratic Capitalism* (Zurich and Munster: LIT Verlag, ZEF Development Studies 2013).