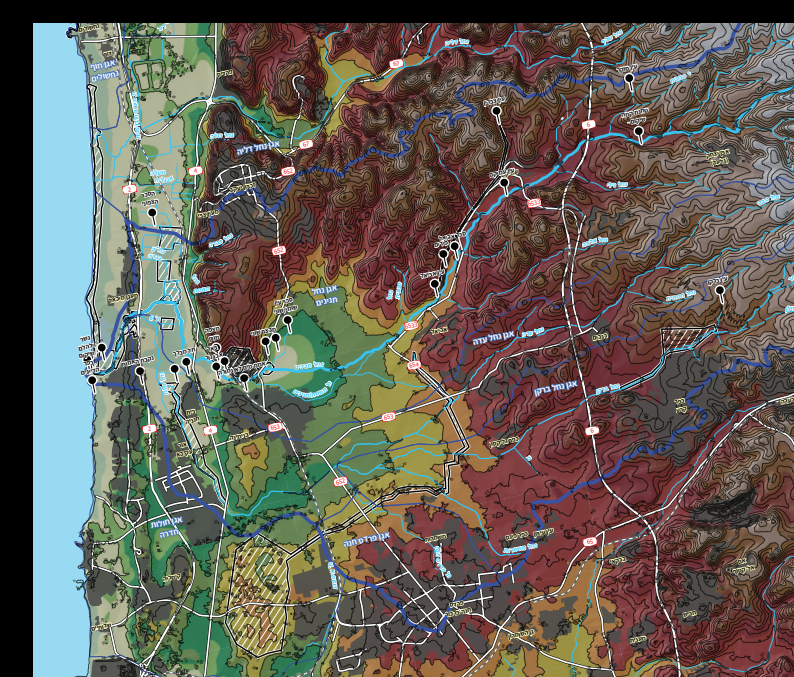
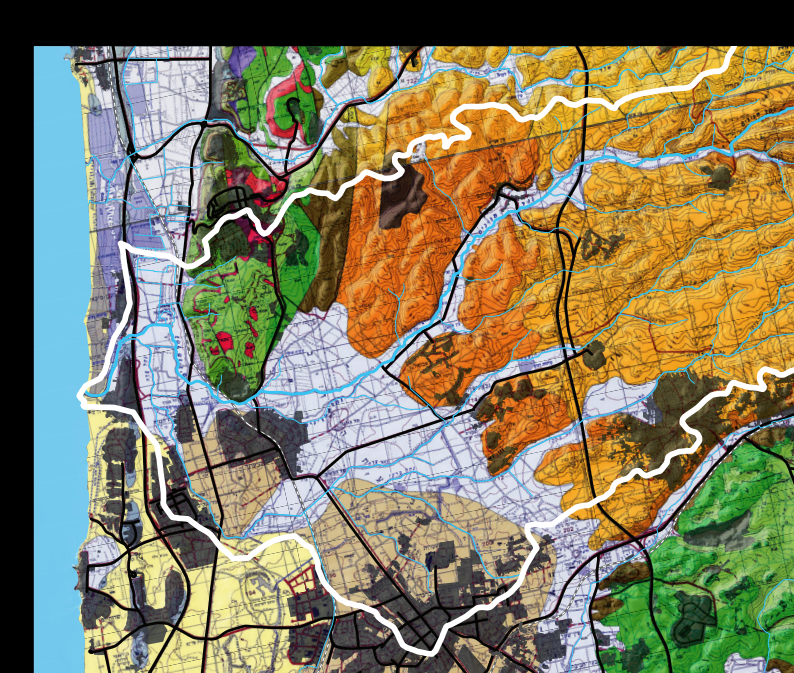


Life in the Anropocene

"WE LIVE in extraordinary times. Our daily existence is longer, safer, and healthier than at any point in human history. And yet, these are also confusing times, scary times. We are richer but less equal, more tolerant but also more envious. Politics are in turmoil, our leaders either technicians or tyrants. We dwell among flickering images, ceding our lives and our politics to machines (and the elite that controls them). Through it all seeps the terrible realization that, day by day and thread by thread, our species is undoing the fabric of life on Earth" (Thomas Oles).



Taninim Estuary Elevation Map



Taninim Estuary Geological Map

**Our challenge** is to propose a new way to generate the future. We begin to do so by acknowledging that the future, always unknowable, is today radically unknowable. Generating a desired future in the face of such uncertainty requires new ways of addressing knowledge. We radically accept that even if we had all the available knowledge and needed resources, we do not have access to new types of knowledge that will need to be addressed in the future. Our answer to these challenges are asking questions: We propose an ongoing iterative approach to design, that relies heavily on creating discourse and reformulating our knowledge, stressing the importance of equity of all stake-holders and reformulating the institutions necessary to achieve these goals.

**A paradigm shift:** the environmental crisis makes us all a weakened population. We propose an approach that embodies not only rehabilitation of a river basin, but first and foremost rehabilitation of the conception of the river basin, focusing on rehabilitating the connection of people to their surroundings, combining connectedness to nature with strengthening community connections. We see the river basin as a commons, which must be developed and managed in an inclusive manner, taking care of all the basins inhabitants needs, both human and non human.

Designed Wilderness

Our current landscape thinking conveys a dichotomy based on the separation between nature and culture, that produces two distinct (and mutually exclusive) environmental design approaches:

1. Designed landscapes & gardens - focusing on the human experience
  2. Nature & wilderness preservation - focusing on the non-human species habitat
- Crossing these two concepts produces:
3. Designed wilderness - this will create a non-human species habitat with a focus on the human experience.

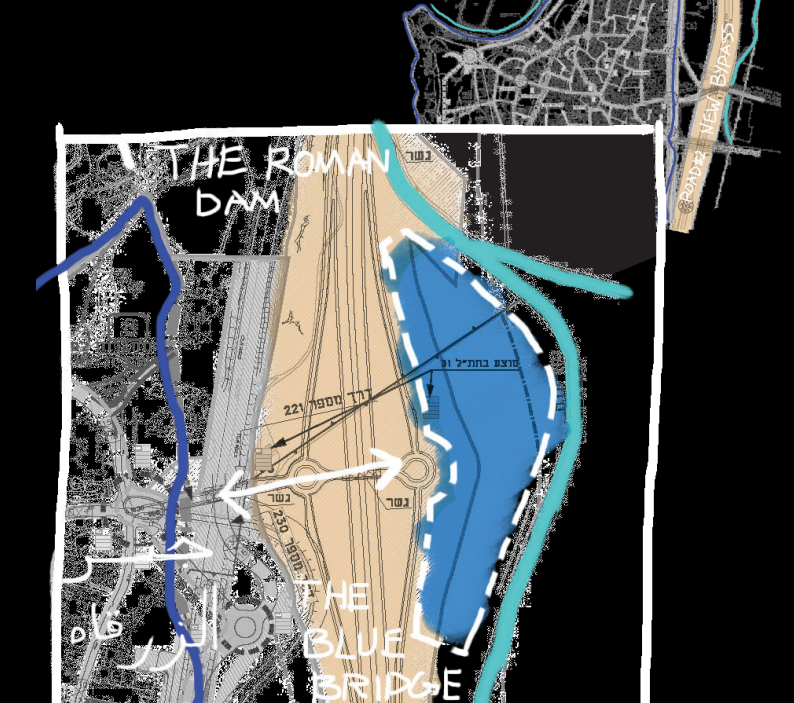
Designed wilderness are NOT reconstructions of natural or historical wildernesses (although they may also be that), but rather a cultivation of that which is wild (i.e. develops without human intervention), within human dominated habitats, stressing richness, variation, and biodiversity.



Investigative Report on Plan (353-0191023)

"The village Jisr a-Zarqa is in a very poor state of affairs in all respects: economic, social, planning and physical, and requires national-level treatment. This is a settlement under economic collapse; the council was dispersed by the Minister of the Interior and the local municipality is on a recovery plan. The settlement is characterised by a very low socioeconomic level, one of the highest natural growth rates in Israel, above average household size, one of the highest densities in Israel and a low level of development"

Guy Kav veNaki, urban and regional planner, December 2017



Jisr a-Zarqa Masterplan No. 353-0191023

The Landscape

**Regional history** Taninim River drains the Menashe Heights foothills and meanders for 25 km on its way to the sea. The basin flows from the springs in the chalk hills to the east, through a fertile agricultural valley. The river flows towards the southern tip of Mt. Carmel and drains into a floodplain between Mt. Carmel and the coastal calcareous limestone range, which was a swamp in the past. This fertile landscape was settled throughout history and it contains remains of prehistoric human settlement, water plants and Roman and other settlements, and abundant Zionist history. The foundation of life in the valley has always been agriculture, and the residents are connected to its landscapes with all their hearts.

During the last century, agriculture prospered in the valley and every possible bit of land was prepared for growing vineyards, orchards and fields in a mosaic that became the identifying feature of the valley, also known as the 'Valley of the Benefactor' (Hanadiv Valley), after Baron Edmond James de Rothschild who acquired its land for the benefit of Jewish agricultural settlement. The settlement ethos viewed productive agriculture as the embodiment of good, the river was regularised and diverted, the settlements grew and the space filled up; over the years many attempts were made to take over the swamp-lands as well for the benefit of agricultural projects and settlement.

**Three Landscapes** The river basin is comprised of three distinct landscape regions: the upstream spring region, the agricultural river region (including Taninim, Ada and Barkan as well as some tributaries) and the floodplain region, which includes the Kebara Swamp and the Difleh estuary. These unique characteristics determine the types of our physical, social, and economic proposals. As complexity increases downstream in both abundance and diversity and economic and historical significance, the river also becomes more mysterious and unpredictable, and the temporal gap increases (upstream, effects are measured in days and months, at the center in years, and downstream in millennia). Hence, our proposed initiatives can be read as a plot that keeps getting thicker, springing projects of research and education and an "estuary" of social-regeneration projects grounded in economic tools.

**Research** We need a paradigm shift to survive the Anthropocene. A great part of this shift is admitting and conceding to different types of knowledge, in particular, experiential-knowing along with disembodied conceptual knowledge. Hence, our reconceptualization of the river and water basin, suggests cultivating personal and communal ways of involvement with the river, combined with rigorous academic research, in both earth science fields such as ecology, hydrology and geology, as well as in the humanities and in emergent field such as eco-system cultural services. We propose Ideas for research centered projects both upstream and down-stream, in the spring and swamp regions, each with their own uniqueness. Our team involves leading researchers from prominent universities in Israel, and our vision is to involve research as a key factor in every project. Economic Development: Our proposed projects are all grounded in both economic and social feasibility. We consider opportunities that may be of social benefit, and of financial feasibility.



The projects

This Following projects are all grounded in existing initiatives, while significantly expanding them as both social development and ongoing research oriented opportunities. The objective is to describe an entire river landscape that serves as a visionary incentive for connectedness of people and nature. A short description of each project is provided below, including an explanation of its importance with respect to the aspects important for the Terms of Reference: objectives and emphases, economy, society, and eco-hydrology.

**Citizen Science** We propose conducting a comprehensive ongoing citizen-science research project, in collaboration with the Technion, Haifa university and other academic institutions, thus providing a platform for interaction of local residents and academics.

**Adopt a spring** There are many springs along the river, particularly along the upper basin. Most of these springs are now dry, or seasonal. The spring research project will focus on identifying all the springs, and studying their "behaviour" over time, monitoring water quality, treating sources of pollution, improving percolation where possible. The project will focus on nature conservation, restoration of the springs, educational activity, research, and bringing together academia and community.

Jisr a-Zarqa/Blue Bridge

At the bottom of the valley, at the river's mouth, are settlements with the most glaring social disparities in Israel (Ma'agan Michael, Jisr a-Zarqa and Caesarea). Each one belongs to a completely different socioeconomic cluster. We believe that the statutory plan and the agreement that we are proposing may enable a dramatic change for the better. Jisr a-Zarqa Masterplan (No. 353-0191023) proposes a diversion of Route 2 up to about 100 m from Ada River to create space for westward expansion of Jisr A-Zarqa. The entry to the village will be by means of a new bridge which is also the entrance to the Roman Dam Reserve, the mouth of Taninim River and the fishermen's village, as well as the beginning of the entrance to the Kebara and river space.

The Blue Bridge Centre

A closed-in area of about 170 dunams remains between the road and Dalya River, where currently only field crops are grown. We propose to convert this area into a gateway to the Kebara Park with road services, catering, a visitor centre, etc., assigning this land to Jisr a-Zarqa as a source of income.

The Kebara and Difleh Swamp

The Kebara and Difleh swamps at Mount Carmel foothills, conceal a system of underground 'currents' that rise to the surface through a myriad springs (Estimated at 4,000-6,000 springs. The Binyamina fault that passes under Mt. Carmel causes the water descending from the mountain aquifer to the coastal aquifer to rise into the Kebara-Difleh swamps. The water emerging from different underground layers carry a unique flavor, varying in salinity, minerals and temperature. As they come to the surface, the water mix with the drainage water of the Taninim and Dalia Rivers respectively, creating a brackish swamp. Swamps constitute some of the richest habitats on the planet. With its varied types of water The Kebara swamp has been home to an incredibly diverse host of species making it potentially the most bio-diverse area in Israel.

**Human settlement** The rich fauna and flora of the Kebara floodplain has made it attractive for humans. There are indications that of continuous human settlement for tens of thousands of years. Findings from the Kebara and Carmel caves indicate that this may be one of the first places in which Homo sapiens, who immigrated from Africa, met the Neanderthals, who came from Europe. And they lived here together. We do not know how long, but it seems that this is the place where their genes mixed.

**Location and Transportation** The Kebara floodplain is located in between the Haifa and Tel Aviv Metropolis, along Israels highway 2 and 4. There are also 2 train stations very near (at Binyamina, and the new planned railway station for Zikhron Yaakov), making it extremely accessible. The area measures 6,000-dunam (600Ha) park, which is about twice the size of the Hula Agamon in the north. These factors combine to give it enormous potential from a tourism perspective.

Kebara Park

We propose turning the whole floodplain to a future mixed use park, from the Cesaria Carob Reserve to the mouth of Difleh River in the North, creating a mosaic of waterlife and agriculture, Eco-tourism and health activities. In order to achieve this, we propose developing permissive statutorics, an agreement among partners, research, and an economic system of incentives that cultivate commitment.

**Mapping** The Preliminary stage of the plan is to map the underground soil structure and water levels. Excavation locations will be targeted in accordance with the exposed water "flavor". Currently there are areas where the saline soil is so poor that would be much better used for ecological restoration and other open space uses providing tourist attractions, then for agriculture.

**Archaeological/Palaeontological excavations** Little is known about what is buried in the swamp. Excavations conducted by Chernov revealed remains of rhinoceros and lions, horses and other animals. It may be that if we begin digging for springs we will also discover palaeontological findings, and maybe also prehistoric findings that we can only imagine now.

**'The Taste of Water' Park** The digs we propose will eventually be flooded by water rising from the aquifer. Thus each pool will open a unique window into the aquifer, creating a micro-ecological niche. These pools could also become Spa pools or health resorts depending on their chemical content or biology. Pools with intermediate salinity can be used to cultivate the garra fish, also known as the nibble fish for its use in pedicure treatment as it eats dead skin.

**Designed wilderness** The park plan will be implemented incrementally, and will include various water bodies, including pools of surplus saline water from desalination plants, and experimental agriculture, which re-examines its connection to the natural world. A mixed park of past, present and future, unparalleled in the world.



Economic Instruments

**The Covenant** Forming the conceptual, legal and economic foundation of the Initiative is a basin-wide covenant. The covenant will be created through a participatory planning process involving the public, private and public stakeholders and professional consultants. The Covenant will define the permitted uses of the land along the river, rights and responsibilities of land owners and members?, mechanisms of cooperation, decision making processes as well as define the basic principles of the corporation's regulations.

**Land Trust** A managing body will be established adjacent to the Carmel Drainage Authority; it will coordinate the progress of the process (planning, marketing, research etc.). Land trust members will include all of the participating bodies: the drainage authority, Yad Hanadiv, representatives of the farmers, Israel Nature and Parks Authority (INPA) and public bodies, residents of the settlements, and relevant government ministries.

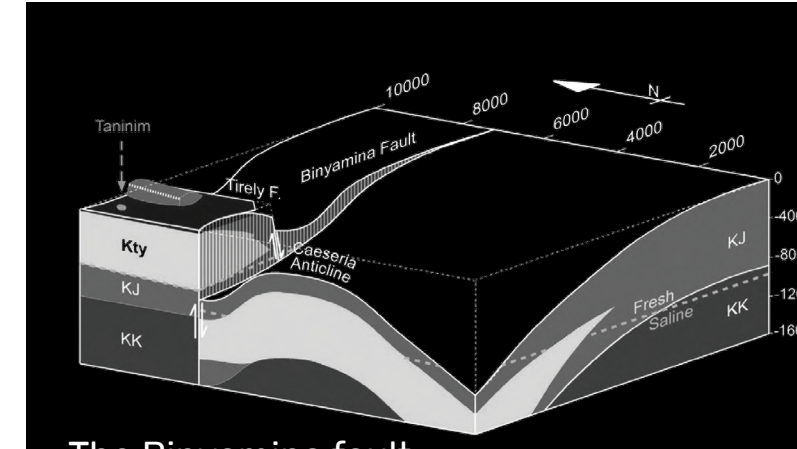
**Research** The Initiative will fund and engage in ongoing research of physical, ecological, social and economic impacts and proposed policies emerging from the development process.

**A new economic model** Yad Hanadiv will provide seed money for incentives and commitments that will create an independent, stable, economic base. The Initiative will provide full funding for the land required by the project, while creating a win-win situation for all stakeholders. See details of the economic process in the tables below.

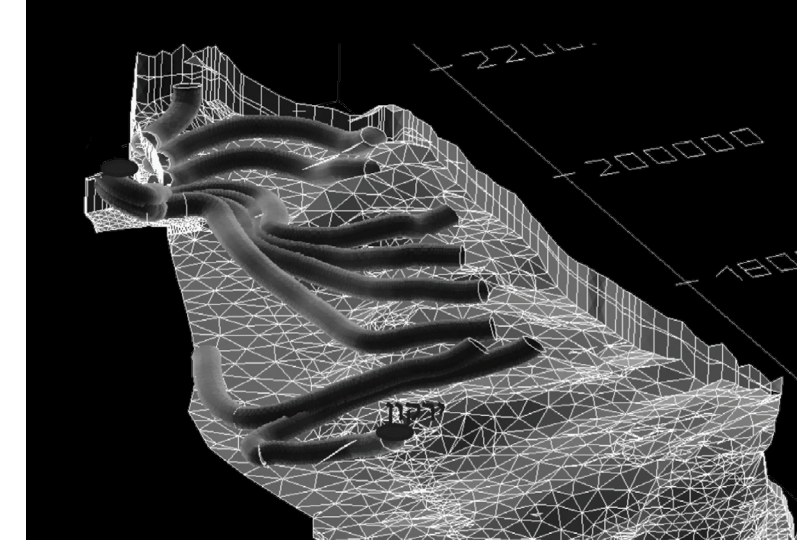
**Statutorics** A zoning plan that will determine the permitted uses, land designations, and regulations accompanied by a detailed design appendix.

Funding

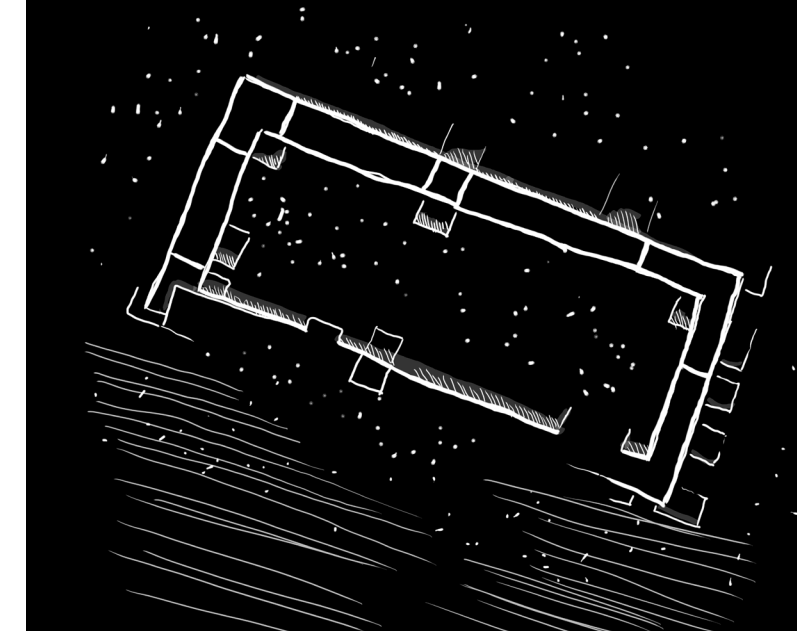
The accepted method for open landscape planning in Israel suffers from a basic failure in the funding of the environmental development of drainage basins. Open landscape planning is usually performed without an organised funding plan; implementation of the development depends entirely on public government funding, which is obtained with great difficulty. As a result, basinal development plans drag on for decades and in many cases are not implemented. In order to overcome this failure, we propose to develop an economic model incorporating public involvement to reduce the dependence on government funding. Such simultaneous treatment of planning and funding greatly increase the chances for implementation.



The Binyamina fault



"The flowing field of fresh and saline groundwater in the Yarkon-Taninim Basin" by Elad Dafni



**Kebara Pool** Recently a large pre-Roman Potable water pool was discovered and dug nearby the Kebara swamp. The pool measuring 50 X 70 m, with 5-m-thick walls, was built around a freshwater spring in the heart of an area of saline flows, indicating that ancient people who lived there knew how to capture and separate the freshwater from the saline. The romans had built major waterworks such as the northern Dam, separating the Kebara from the Difleh, a magnificent diversion dam at the mouth of the Taninim stream, and the aqueduct to Cesaria near Beit Hanania. The Kebara remained flooded until the beginning of the 20th century, when Zionist enterpaneurs tried to drain it, in order to recover lands for agriculture. However, these lands are poor and often saline, and prone to floods. Over the years, the area has been used mostly for fish ponds, enjoying the relative salinity of the underground water. Recently, desalination plants were erected in the area, that produce highly saline water which are channeled out to sea.



Carmel Drainage Authority

A selection of projects and initiatives led by Carmel Drainage Authority: **Development of Taninim Nature Reserve and the Roman Dam** Carmel Drainage Authority, in partnership with INPA, led an initiative to excavate, restore and rehabilitate the Roman dam in Taninim Nature Reserve. What began as a high priority drainage project, evolved into a series of significant archeological findings and the creation of a new nature reserve. As part of this initiative, Carmel Drainage Authority led a steering committee that include INPA, Antiquities Authority, Ministry for Environmental Protection (MEP), adjacent settlements and councils, planning bodies, and executive, inspection and supervisory bodies. **Declaring the Carmel Caves a UNESCO Prehistoric World Heritage Site** The Carmel Drainage Authority initiated a campaign resulting in the addition of the Carmel Caves to the Tentative List to the list of UNESCO World Heritage Sites. The Carmel Drainage Authority led an alliance including: the University of Haifa, Hof Hacarmel Regional Council, INPA, the Antiquities Authority, neighboring municipalities, and UNESCO Israel amongst others. **Planning Ecological Rehabilitation of Taninim Stream** Over the last 3 years, Carmel Drainage Authority, in partnership with Ramat HaNadiv, conducted an extensive planning process for the ecological and hydrological rehabilitation of the entire length of Taninim Stream. Stakeholders in the initiative included INPA, MEP, KKL, the Society for Protection of Nature in Israel (SPNI), agricultural associations, local councils, community representatives, and other stakeholder organizations. The process included a workshops with experts from abroad, tours, and surveys. Recently, the plan was submitted for approval. **Prevention Cattle from Polluting the Springs** The Carmel Drainage Authority, in partnership with INPA, initiated a program to prevent pollution of the springs by cattle by placing water troughs as alternative water sources. The Carmel Drainage Authority led a steering committee that included INPA, KKL, Megidolo Environmental Unit, Megidolo Regional Council, cattle ranchers, planning bodies, and executive, inspection and supervisory bodies. **Establishing an Agreement with INPA** Carmel Drainage Authority signed an covenant in 2002 with INPA for the management of the stream environment interface. **Rehabilitation of the Ancient Aqueducts** Carmel Drainage Authority was chosen by the Antiquities Authority to be a partner in leading an initiative to save and rehabilitate the ancient aqueduct to Caesarea along the section between Route 4 and Route 2 and in the section of breaches in the aqueduct where it is crossed by Ada Stream.

**Credits** **Carmel Drainage Authority** - Moshe Israeli, Yeshu Dray, Carmel Sela; **NPA** - Ze'ev Margalit, Nisim Keshet; **Haifa University** - Prof. Noam Greenbaum; **Technion** - Prof. Tal Alon-Mozes; **Financial consultant** - Gadi Rozenthal; **Eco-hydrologic consultant** - Ori Moran; **Landscape Architecture** - Ram Eisenberg Environmental Design

