L.E.T.S. Lebanon

Issue 46, January 2018

• Creativity • Collaboration • Continuity • Community

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FEATURE STORY

AN INCINERATOR FOR BEIRUT? A DOCUMENTARY BY ZIAD ABI CHAKER

Lebanon needs a radical paradigm shift to solve its **garbage crisis**, and, more importantly, the greater environmental crisis that has been rampant for decades. The pileup of unsorted - and often toxic - garbage under bridges, in riverbeds, and in highly controversial landfills is only the tip of the iceberg, but it is a good place to start working our way up.

Today, **garbage incinerators** are at the center of a raging debate. Can they reduce waste effectively? What kind of waste can we incinerate? What about emissions and byproducts from these facilities? When pressed for more transparency, authorities further confuse the issue by blinding us with science, or, more accurately, the absence of science. When they quote facts and figures, they do so out of context, without a national assessment on the ground. This Byzantine debate only prolongs the crisis while illegal dumping and open-burning sites continue unchecked.

Toward the end of 2017, the indefatigable *Ziad Abi Chaker* took things in his own hands. Backed by a large number of associations and individuals, Ziad put together a film crew to go hunting for information. He secured an invitation to spend 4 days at the **Odense** state-of-the-art **incineration facility** in **Denmark** – the country that will supposedly supply the Beirut municipality's waste incinerator - and get all the necessary information straight from the source. During that time, Ziad questioned the facility's staff regarding every single detail of their operation... and they were happy to give him all the answers he needed without any reservations! After that, Ziad and his crew returned to Lebanon to compare their findings with the situation on the ground and discuss the consequences and feasibility of an incinerator in Beirut.

The record of this in-depth investigation is the must-see **documentary** titled **"An Incinerator for Beirut?"** presented for the first time on **January 18, 2018** at the **Metropolis** movie theater in Beirut, followed by a lively discussion. The 30-minute documentary is now available on Youtube for public viewing: An Incinerator for Beirut? A Documentary

Ziad says he hopes his documentary will add a measure of clarity to the debate and inform decision-makers. However, the more pressing issue is for as many Lebanese citizens as possible to gain a better understanding of the technology behind incinerators and its implications for our living environment and health. With this knowledge, every one of us can form their own opinion and decide for themselves whether implementing an incinerator in Beirut is the right solution.

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Stills from the documentary "An Incinerator for Beirut?"

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FEATURE STORY

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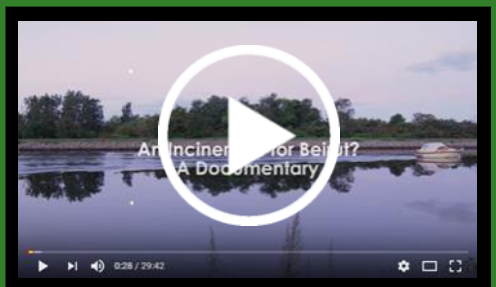
The documentary is eye-opening on multiple levels. First, we were as surprised as Ziad himself to find out that **Denmark used to dump its garbage in the sea to reclaim land**... much like Lebanon has been doing since the 1990s! Denmark decided to put an end to this practice some 40 years ago when it realized its detrimental effects. To this day, **leachate** from landfill sites along the Danish coast still pollute underground water and the sea. The **methane** trapped under the surface is still there and the government is studying ways to recover it and put it to better use.

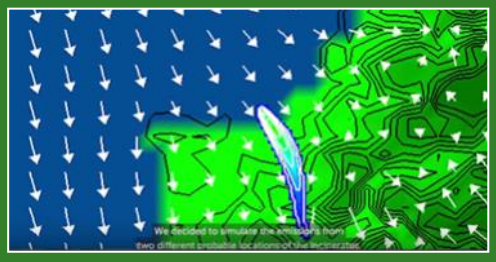
That is not to say that incinerators were the alternative to landfills in Denmark - far from it. Denmark has replaced its dangerous practice with a full recycling infrastructure on the national level. Almost every town has a waste collection and sorting site with highly-segregated containers. Municipal authorities then sort this waste further, separating reusable items (such as old furniture or machine parts), recyclables, books, clothes, organic waste, etc. Only non-reusable, non-recyclable, and non-hazardous waste is sent to incinerators.

The incinerators themselves are massive structures operated by private companies under a strict government contract and standards. Truck drivers who deliver waste to the facilities are tracked and fined in case their loads contain recyclable materials, organic waste, or toxic waste. Although organic waste only makes up about 33% of Denmark's total waste output, this waste is not incinerated as it may extinguish the incinerator's furnace. The incineration process itself is a highly sophisticated operation closely monitored at every stage from delivery to burning, filtering, and recovering waste in order to prevent toxic emissions. The heat and flue gas is used to heat water and convert it to water vapor to produce electricity for houses in the area. **Bottom ash** from the incinerator (non-combustible substances) is compressed, tested for toxicity, then used as a foundation for asphalt roads.



Click here to watch "An Incinerator for Beirut?" on Youtube

Although this process is highly efficient, 2 unusable products remain at the end of each incineration cycle: **fly ash**, very light ash particles that remain in the air filtering systems, and **sulfur-rich water** resulting from the cooling systems. Both these products are highly toxic and are untreatable. Denmark mixes the fly ash with the water in containers and pays Norway to bury them on an uninhabited island. In case bottom ash is not up to standards, it is also shipped to Norway. Although Denmark is roughly 4 times bigger than Lebanon and has the same population size, it couldn't find a single spot to bury this toxic waste on its territory.



We have discussed An Incinerator for Beirut with a number of friends, both Lebanese and foreign. The response we had each time was the same: Lebanon is screwed! Of course they are right when you consider that current authorities cannot even manage a simple recycling facility. Can you imagine them flawlessly running such a complex incinerator *and* generating energy, let alone without polluting?

Back in Lebanon, Ziad visited **Dr. Issam Lakkis** at the **American University of Beirut (AUB)** who ran a simulation showing the dispersal of emissions from the proposed incinerator off the coast of Dora. Based on his simulation, Bourj Hammoud would be exposed to around 60% of the emissions, Ashrafieh 30%, and Zalka, Antelias, Mansourieh, Hadath, Hazmieh, and Haret Hreik 10% each – none of which are healthy levels. **Dr. Carol Sukhn** of the **AUB Science Research Center** then explained there are no labs equipped to measure **dioxins** and **furans** (the most toxic substances in emissions according to EU standards). Even so, Dr. Sukhn tested a sample of fly ash Ziad brought back with him from Odense and found high amounts of **heavy metals** (lead and cadmium) as well as **poly aromatic hydrocarbons**, some of which are not only carcinogenic but also responsible for genetic mutations!

Did you enjoy watching "An Incinerator for Beirut?" or reading about it?

Would you like to find out more about possible solutions for the garbage crisis in Lebanon?

Click on the image below to watch Ziad Abi Chaker's previous documentary: "A Zero-Waste Lebanon"

Click here to watch "A Zero-Waste Lebanon" on Youtube

So, to recap, here are the facts:
-Landfills and land reclamation are dangerous practices
-Denmark's garbage incinerators require highly technical knowhow and monitoring
-Denmark's garbage incinerators do not get rid of all the waste, including organic waste
-Even in the best case scenario, these garbage incinerators still produce 2 highly toxic and untreatable products (fly ash and sulfur-rich water) which Denmark pays Norway to dispose of
-A new law in Denmark will increase recycling rates, leading to a decrease in the amount of waste sent to incinerators
-Lebanon currently has no capabilities to measure the amount of dioxins and furans in industrial smoke

Like Ziad, we at SOILS Permaculture Association Lebanon believe there is no magic bullet to solve the garbage crisis. Given the right conditions, an incinerator may be *part of the solution*. As Dr. Lakkis said: "The difficult path is the right path to walk: sorting at source, and especially sorting the organic waste from the non-organic one." Even if we were to build an incinerator, its size, location, and supporting infrastructure should be carefully taken into consideration.

Shared by the Editorial Team

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LET'S FOCUS

BADARO URBAN FARMERS: BUILDING A COMMUNITY IN THE CITY AROUND FARMING

When a group of individuals come together, with the same wish of sharing environmentally-friendly actions, bringing back a bit of a green feel to an urban area, and developing community-building activities in their neighborhood, this can lead to nice initiatives just calling to grow! From small gatherings between neighbors to the setup of a farmers' market there were just a few steps. That's how the idea of the **Badaro Urban Farmers** became a real experience.

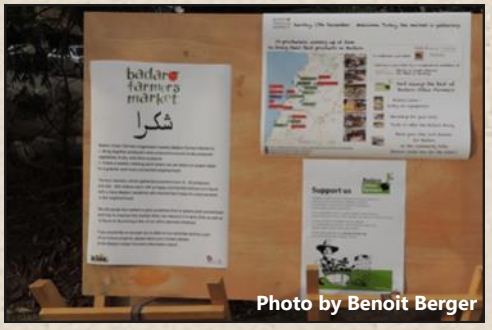

Photo by Benoit Berger

Badaro Urban Farmers members wanted to provide producers with a low-cost option to sell directly to consumers, and allow Badaro residents to purchase fresh produce directly from producers. Farmers' markets play a vital role not just in generating real income for farmers, but in forming a healthy, prosperous food system, and creating environmental awareness. By connecting consumers directly with producers, the market serves as an education center where producers and animators can teach visitors about agriculture, beekeeping, recycling, composting, etc. The market makes the community stronger and healthier.

Many contributors and partners helped make this market a reality. Let's begin with the **20 producers** who participated in the market. Throughout the 4 editions of the market that took place between November and December 2017, these producers sold their fresh, and in some instances organic produce as well as honey, dried herb mixes, kombucha, preserves, chocolates, organic wines, soaps, cider, bread, and much more. Some of the producers introduced visitors to **permaculture** and **aquaponics**.


Photo by Valentine Sleiman

Fady Aziz of **Good Thymes** noted: "It was amazing! Great atmosphere indeed and positive vibes all around - from you the organizers and from the people who attended the market. Thumbs up! We are definitely in for at least the next five markets. Thanks a lot for this opportunity and keep it up." For *Joe Harb*, from **Miel du Levant**, this was finally a market where Lebanese produce is appreciated in a convivial atmosphere where young and less young people can taste, enjoy, and learn a bit more about food heritage.

Recycling was high on the agenda of the market. **Cedar Environmental** donated two community tables made of recycled plastic bags, providing visitors with a central place to meet and engage with each other. The team also managed the market's recycling station and collected recyclable waste. Meanwhile, **Compost Baladi** collected organic waste and raised awareness about composting. To help ensure the markets are zero-waste, the **Arcenciel** NGO donated shopping tote bags. The **Green Glass Recycling Initiative Lebanon (GGRIL)** and **Mdawar** sold items made from recycled glass. A local shop, **Au Soleil**, sold decorative items made from recycled wood.


Photo by Benoit Berger

The local NGO **Namlieh** provided saj and other food items, and we invited a different cooperative every time to come and sell their produce.

The first market featured a workshop on bees and pollination for children by **Le Drageon**, an environmental and sustainable development center in **Chouf**. During the three other markets children were invited to create decorative items from salt dough, colored salts, or pine cones. A pop-up bicycle repair station was hosted by CyclingCircle and The Bike Kitchen.

The **Badaro Merchants Committee** supported the Badaro Urban Farmers market by providing the space and obtaining the required official approvals. We also sold honey produced on Badaro rooftops to support the market and raise awareness about urban beekeeping.


Photo by Valentine Sleiman

Thanks to these contributions and to the work of 12 volunteers, the four editions gathered more than **400 visitors** who described it as friendly market where they could meet producers, residents, friends, and much more.

After the final test market in December, the group paused the markets for winter and used this period to assess their success, set standards and criteria, and grow future markets with products such as other healthy food items, locally brewed beers, and a gift basket stand. While identifying new stand holders, Badaro Urban Farmers focuses on quality and affordability. Badaro-based NGOs will be invited to promote their activities and sell any of their products on a rotation basis.

The Badaro Urban Farmers market should resume on **Sunday, March 4, 2018**. Stay tuned to our Facebook page **Badaro Urban Farmers** for the announcement.

To find out more or get in touch with us, email us at: the.badaro.urban.farmers@gmail.com

Shared by Allyson Croft, Cyril Rollinde, Valentine Sleiman


Photo by Valentine Sleiman


Photo by Benoit Berger


Photo by Valentine Sleiman

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LET'S SHARE OUR NEWS

SHAMS PERMACULTURE - FOR THE LOVE OF LIVING AND LIFE IN ALL ITS FORMS

At **Shams Permaculture**, we are conscious young farmers who apply **permaculture**, a holistic farming approach that implies working in harmony with nature rather than against it, embracing natural resources without depleting the land.

We started this project in **June 2016** when we found our current farm. It is a relatively big land totaling **14,000 m^2** and situated at an **altitude of 1,450 m** on a slope overlooking a valley in **Mazraat Kfardebian, Kesrwan caza**. We were a small group of 5 people from different backgrounds who shared the same dream of creating a new lifestyle or – to be more accurate - a new life; one that is clean and sustainable, in harmony with nature and its flow. I guess because we were all fed up with all the craziness happening around the globe, we felt it was time for a love revolution, one that wouldn't happen in the streets but at the heart of the very nature that created us. Two of us (*Michel* and *Georges*) were already familiar with permaculture since 2013 and were dabbling with applying its principles in agricultural practices. Soon enough we found permaculture was the only way to achieve our common dream and Shams Permaculture was born.

We started by evaluating the site's **energies** and designing the landscape to introduce new varieties and redesign patterns based on the energy of each zone (altitude, soil, exposure, etc.). The land had an abandoned orchard with old **apple, peach, plum, pear, and cherry trees** which we kept. Because we are on a slope, we have different soils, from clay dominant to sand dominant. In the sandy dominant part, for example, we are focusing on wild **native trees** such as **pine**. We are also introducing **perennial wild herbs** such as **Syrian oregano** (*Origanum syriacum*), **rosemary, lavender, sage, lemongrass,** etc. As part of our organized diversity and integrated natural pest control approach, we also planted **annual herbs and flowers** such as marigolds, and biennial herbs such as dill. Finally, we planted vegetable varieties that thrive in high altitudes. All our crops are seasonal and we do not use plastic tunnels.

The **Kfardebian river** runs along the entire contour of one side of the land, outlined by old plane trees (*Platanus platanaceae* - الدلب المشرقي) some of which tower at 30-50 m. The river is mainly fed by the always-running Honey Spring (نبع العسل) which also supplies the water to our land. Instead of pumping water from the river, we use the spring water higher up the slope and rely on gravity to irrigate 95% of our crops. After running its course through our land, the water continues its descent to feed the river.

Likewise, we aim to make all the energies in our project cyclical or recyclable, both physically speaking and in the patterns. **Composting** is a main life event for us. We make a carbon-based compost for our fruit trees, a nitrogen-based one for our vegetables and some woody plants, and we use a compost toilet ourselves (this consists of a dry toilet and reed beds for greywater). We use a no-till method to plant our crops: we prepare mulch beds and supply them with water either through micro irrigation systems or via small canals that allow water to run around the beds.

In our way of seeing things, we have a penchant for the natural farming ideology. The stability of this ecosystem is its wild diversity. We love our weeds and wild neighbors, and we try to disturb the existing soil and flora as little as possible. We have met hedgehogs, mice, snakes, scorpions, a big variety of lizards and geckos, hyenas, jackals, red foxes, turtles, owls, and a huge variety of birds. The snakes we could identify so far are black whip snakes (*Dolichophis jugularis*), plains black-headed snakes (*Tantilla nigriceps*), and Dahl's whip snakes (*Platyceps najadum*). Wild medicinal herbs and plants that already existed here are another one of our main interests. They include rosehip, hawthorn, elderberry, hollyhocks, etc. In fact, we make our own medicines and tinctures from these herbs.

The project is still in the making, like any ecosystem that needs time to grow and mature to achieve its sustainability. Our project is self-funded, and we do all the work with our own hands. The construction of our eco-cabins will be underway this year (we had been camping for so long that we really miss and need our beds). Once we are established, we will immediately be able to introduce animals and care for them appropriately. To be honest, when you start out to create everything from scratch, it is pretty tough physically and mentally, but with enough dedication and a lot of love, everything can be achieved.

In order to sustain this project and its development, we supply the **Organic Sisters** kitchen with fresh produce. We also work with the **El Atayeb women's cooperative** in Mazraat Kfardebian to process part of our harvest. Using a mixture of old recipes and new culinary approaches, we create a multitude of healthy sugar-free products such as jams, marmalades, molasses, dried fruits and herbs, vinegar, juices, and spirits. Thus, we work ethically to produce the best of organic seasonal crops and products, or simply how food should be at its most natural state. This is a small example of how to work hand-in-hand with the surrounding community and create healthy relationships.

All along our journey, we welcomed friends and new faces (who then became friends) to help us prepare the beds for planting seedlings or pick fruits and vegetables. We always learn new things from our visitors and they as well learn about permaculture in practice. At the Badaro Urban Farmers market, we also had the chance to meet other farmers that share the same approach of living via a permaculture design system. It is heartwarming to see other people doing things with their own hands; you directly relate to them as they relate to you. We vibrate along the same chords on solid ground with real people. We are looking forward to meeting new visitors and volunteers as we explore new venues such as eco-construction, reed beds, etc.

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LET'S SHARE OUR NEWS

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All our products can be found at the **A New Earth** store in Ashrafieh, and **Nature** in Kaslik. We will also be present at the Badaro Urban Farmers market and other similar markets in the future, hopefully.

Permaculture is still a new concept, or at least a new approach today. People around us continue to ask "What is permaculture?" Recently, we conducted an introductory session at Nature. We were surprised by the big attendance and the high interest in this subject. We gave a demonstration of the sheet mulching method we have been using for more than 4 years and explained this simple layering contributes to creating soil year after year. You can never be sustainable in a garden unless you are creating more soil than you are using.

We are so grateful for all of these opportunities to be able to share our knowledge and gain more experience. We only have a small window now where we can pop up and spread the knowledge, but this is perfect for us as most of the time we are busy farming, creating, learning, and living.

We welcome all nature lovers to drop by our farm and get their hands in the dirt with us to share this beautiful experience.

Shared by Michel Maasri and Georges Atallah

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CHILDREN PLAY "MOUNTAIN EXPLORERS" AND BECOME ECO-CITIZENS

In **January 2018**, the **Lebanon Mountain Trail Association (LMTA)** announced the launch of **Mountain Explorers**, an extracurricular online educational tool for teachers, educators, parents, and students. Mountain Explorers was developed by the LMTA and the **Fondation pour le Développement Durable des régions de Montagne (FDDM) in Switzerland,** with funding mainly by the **Swiss Cooperation Office** of the **Embassy of Switzerland** in Lebanon.

The platform aims to help **children between 8 and 12 years old** understand the importance of **mountain ecosystems** in Lebanon and preserving their natural resources, biodiversity, and heritage. It is conceived as an extra-curricular learning tool with an interdisciplinary approach.

The challenges of maintaining a balanced ecosystem in mountainous regions are numerous. Deforestation due to irresponsible development, overgrazing, and intensive agriculture destroys natural habitats and biodiversity, and can cause landslides. Unregulated hunting worsens the problem and contributes to the spread of pests and diseases. The use of pesticides, fertilizers, and intensive irrigation further degrades the environment. The mismanagement of waste leads to forest fires, contaminated underground water, and poor air quality. And the list goes on…

Once logged in, children can play individually, or preferably in classroom groups under the guidance of their teacher. They join the main characters, "Yasmine" and "Jad", to explore a virtual map of Lebanon's mountains through "theme" villages (**Agriculture, Air, Biodiversity, Cultural Heritage, Forest, Water Quality, Water Quantity**). With the help of "Na7lati" the bee and an interactive interface, they can learn about sustainable development, rural eco-tourism, and environmental stewardship. Children need to answer multiple-choice questions or perform drag and drop actions using their virtual Tools & Solutions box to improve their knowledge or discover solutions to environmental degradation issues such as water, land, and air pollution, intensive agricultural practices, loss of habitat, etc.

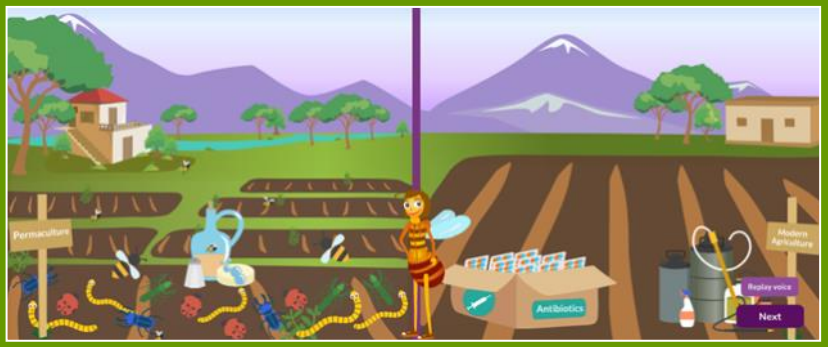
In addition to the virtual tour-game, Mountain Explorers contains downloadable sheets containing experiential hands-on activities that can be carried out offline. **SOILS Permaculture Association Lebanon** was happy to contribute in developing 2 **activity sheets** under the themes of Agriculture (Composting) and Biodiversity (Bee Hotel).

Every time children complete an online challenge or offline activity, they earn a stamp on their virtual **Mountain Passport**.

Mountain Explorers is designed to enhance problem-solving, critical-thinking, and cooperative learning. It contains teacher and parent guides that provide further information on each theme and facilitate dialogue and debate between the learners.The platform also features useful links and resources tailored to the target age group such as educational posters, articles, or videos.

To play Mountain Explorers, go to: https://www.mountainexplorerslebanon.org/en/map (available in English and Arabic)

Shared by the Editorial Team



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LET'S SHARE OUR NEWS

DAHR EL SOUWAN WELCOMES VISITORS... WITH CAROBS

Driven by the haunting passion to see more greenery around and to cover up the dreadful concrete sea that is spreading aggressively against nature's law and despite its will, I recently led another planting initiative in my village of **Dahr El Souwan, Metn caza**. This time, I would take a bolder approach than in my first attempt a couple of years earlier.

Back in 2015, I succeeded in getting **2,500 pine saplings** from the **Shouf Biosphere**, and planted them across my village, with the help of the municipality's workers and few other beautiful souls who volunteered to help. Although this initiative was both thrilling and satisfying, planting those saplings proved challenging, and the results were often saddening. It was challenging because we had to put in place all sorts of tactics and implements to allow the delicate baby trees to thrive safely. Yet despite all our efforts, we were saddened to have around 35% of the trees die. Some of them succumbed to heat exposure, others couldn't grow in barren soil, a few were hit by cars, and others still were the victims of so-called "human beings" trampling them or even removing them on purpose. Still, we are looking after the survivors and trying to give them the best chances possible.

This drove me to seek a more aggressive approach. Luckily, while I was drawing up my plan, the main road at the village's entrance was being renovated to become a larger boulevard (this is the parallel road leading to the well-known Bhannes hospital). I seized this opportunity to propose planting the new boulevard with trees. Only this time I would use full-size trees instead of saplings to give them a better chance.

I worked with landscape architects to conduct research and draft proposals to the municipality. We wanted to plant the right type of evergreen tree that would grow at an altitude of 1,000 m and that would also bear fruit for the benefit of residents and visitors. The municipality considered offers from several nurseries to find the most suitable price.

After a few months' work, in **May 2016** we finally planted **50 locally-sourced carob trees** (***seratonia siliqua***), already full-grown at a height of **3 meters**, along the entire boulevard. In 2017, we added another 10 trees, making the total **60**. What was initially intended to be a mere concrete pathway for passers-by is now a beautiful green and shaded boardwalk breathing pure air, calling joggers and cyclists for a healthy stroll. And the bonus is that anyone who fancies picking carobs for a light sweet snack or to make molasses is also benefiting from these trees.

I'd like to end this article with a Chinese proverb that inspired and put me on the green path, hoping it will inspire you too:

The best time to plant a tree was 20 years ago, the second best time is now.

Shared by Diana Maatouk

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GET IN TOUCH, GET INVOLVED

Do you enjoy reading this newsletter?
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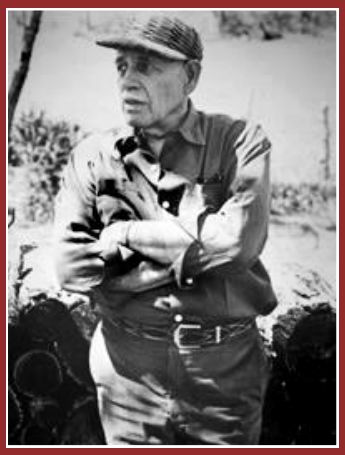
A THOUGHT TO SHARE ...

"Knowing trees, I understand the meaning of patience. Knowing grass, I can appreciate persistence."



–Harold "Hal" Glen Borland (1900-1978)
Countryman: A Summary of Belief

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