

Nomade des Mers

PRESS PACK

5 YEARS

OF EXPLORING

LOW-TECH

INNOVATIONS



June 2021



LOW

-

TECH

LAB

Born in the 1980's, I grew up - like so many in my generation - watching science fiction films offering a vision of a high-tech future. From The Fifth Element to Star Wars, I dreamed of flying cars and holidays in space. Science and progress were going to take us there, and I wanted to be a part of it.

Until the day I began to have doubts over Bruce Willis and his flying taxi: It seemed as though intergalactic holidays would pass myself and my generation by. Within a few years, this image of the future had fallen apart. My visits to developing countries had already sown this doubt. Seeing the production conditions in factories around the world, with no respect for humanity nor the planet, had shaken the prospect of a high-tech future. But the final blow that shattered this image was dealt by the scientists; we are at the beginning of the sixth mass extinction. Our generation is therefore faced with the biggest challenge in humanity's history!

I buried the idea of a high tech future and set off around the world aboard a floating laboratory, in search of a new vision for the future.

After 8 years of roaming, of discovery and experimentation later, I'm coming back with good news: all around the world, at home and in distant countries, people are using their ingenuity to create cleaner, more sustainable lifestyles. They are making use of innovative skills and technologies. They believe in a connected world; connected to nature, to their environment, to their needs and resources. And from these discoveries, a new image came to mind; one of a low tech future!

*Corentin De Chatelperron
founder of Low-tech Lab.*

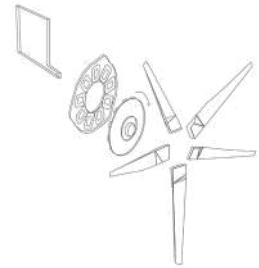
Corentin



For us at the Low-tech Lab, a low-tech includes objects, systems, techniques, services, know-hows, practises, behaviours and even ways of thinking that use technique and technology according to three principles:

USEFUL

A low-tech meets the needs that are essential to an individual or community. It contributes to ways of living, producing and consuming that are sound and relevant for all in fields as varied as energy, food, water, waste management, materials, housing, transport, communication, hygiene and even health. By encouraging us to go back to basics, our actions become meaningful.



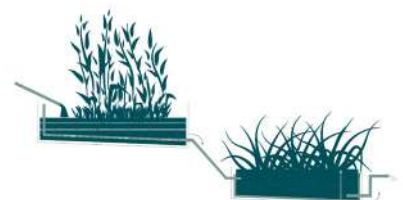
ACCESSIBLE

A low-tech must be one that as many people as possible can make their own – both technologically and financially. As such, you must be able to make it and/or repair it locally, so its functioning principles must be simple to understand and its costs adapted to a large part of the population. It encourages the population to be more independent on all levels, and value or work are more evenly distributed.



SUSTAINABLE

Eco-designed, resilient, sturdy, repairable, recyclable, agile, functional: a low-tech makes you think and optimise the environmental, social or societal impacts linked to using this technique, at all stages of its life cycle (from design, conception, production, use, end of life) even if it sometimes involves using less technique, and more sharing or collaboration!





The more we go towards technologically enriched objects, with integrated electronics, metal alloys or composite materials less easily recyclable, the more we move away from the circular economy, which is the goal of a lower-tech economy.

Philippe Bihouix - The Age of Low Tech (2014)

Utopia has changed sides: today is utopian one who believes that everything can continue as before.

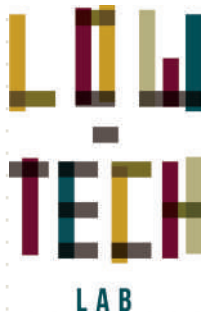
Pablo Servigne - How everything can fall apart :
Small collapsology manual for use by present generations. (2015)

From an economic perspective, the core of wisdom is sustainability. We need to look at sustainability economics. Nothing can have economic significance unless its long-term pursuit can be conceived without sinking into the absurd. [...] Sustainability is incompatible with a rapacious attitude, which favourably judges the fact that «what was luxury for our fathers became necessary for us.»

Ernst Friedrich Schumacher -
Small Is Beautiful : a society in the measure of man (1973)

We're not rejecting the machine; we're celebrating it. But we would like to see it controlled.

Charles Robert Ashbee (Arts & Crafts movement)



Since 2013, through our research programmes, experimentation and collaborative documents, Low-tech Lab (a non-profit organisation) has spread and promoted low-tech ideas to supplement more considerate lifestyles – both to mankind and the planet.

Lowtechlab.org

EXPLORE



To unearth low-tech solutions and projects in France and around the world.
Nomade des Mers, Low-tech Tour France

FACILITATE



By using collaborative tools to allow collective action and implementing community programmes throughout the world, Low-tech Lab allows everyone to advance in their low-tech pathway while contributing to a global movement.
Cartography, Our resource base, calendar, wiki platform, Programme explorer, Community programmes

EXPERIMENT



In different contexts and domains, to test our approach in real conditions and demonstrate their suitability.
Biosphere, Low-tech for Refugees, Agami (Low-tech mobility), Low tech housing

DOCUMENT



By engaging with the technological aspects as well as the economic and environmental capabilities and by observing appropriate and consistent approaches to share them free of charge .
Step by step technical tutorials, Experiment reports, Measures of potential impact, Usability studies, Surveys on the acceptance of low-tech, Documentation on examples of low-tech

BROADCAST



Through conferences, web-series, books etc., Low-tech Lab share their experience and the testimony of their ambassadors far and wide to show off these possibilities, and encourage everyone to find inspiration.
Conferences, web-series, book, think tank, exhibitions, and so on.



SEEKING LOW-TECH INNOVATION AROUND THE WORLD



Experimentation area: Around the world

Period: 2016 - 2021

Led by: Corentin de Chatelperron,
Guénolé Conrad, Caroline Pultz

In 2016, Nomade des Mers, the catamaran ambassador of low-technologies, set sail from Concarneau (France) for 5 years of exploration around the world!

As an experimentation platform, promotional support and means of broadcasting, **Nomade des Mers' vocation is to become an ecosystem, standard-bearer of sustainable and durable innovation.**

At every stopover, the Nomade des Mers crew sets off to find **exemplary low-tech initiatives concerning technical, economic, social or environmental aspects.**

On board the catamaran, the team tests the new low-techs in an everyday use to show their potential or the aspects that need to be improved.

Throughout the trip, this extraordinary adventure offers an international stage for low-tech innovation thanks to the creation of documentary films broadcasted on the French-German channel ARTE.



A 5 YEARS

EXPLORATION

25 STOPOVERS

50 LOW-TECH





20W wind turbine



A wind turbine converts the kinetic energy of the wind into electrical energy. Unlike traditional wind turbines, this low-tech turbine is made from recycled materials (e.g. printer motors). It costs less than €10 to build. Generating less power than industrial wind turbines, they can be used for local applications: charging a mobile, lighting LEDs, powering a small pump... for such applications as these, just a few watts will suffice!



220W wind turbine/ Piggott wind turbine



The generator, and more generally the Piggott wind turbine, were designed with the purpose of producing electricity from moderate to calm conditions. Its DIY set-up allows us to master the tools of construction, their maintenance and repairs. Furthermore, it boasts good energy output.



Agroforestry



To be documented.



Arduino microcontroller



This easily programmable microcontroller based on open-source code allows us to manage electronic systems. On the Nomade des Mers it is programmed to distribute energy between the different electrical systems (hydraulic pump, ventilator, water pump for spirulina...). Thanks to its alternating function, the usage of the limited and inconsistent energy available (solar, wind power) is optimised.



Battery recycling



Simple outdoor battery project made from recycled electrical components to be used for lighting or smartphone recharging.



Biocarbon Green carbon



Biocarbon is used for cooking. What sets it apart is that it is produced from agricultural and domestic waste. This organic waste is carbonised in a metal barrel, then mixed with clay, peanut shells and water. This paste is pressed into cylinders which can be used as a replacement for traditional carbon.



Bioclimatic house



The bioclimatic house is a construction which uses all available natural resources for its utilities (heating, water and waste)



Biocontrol



To be documented.



Biodiesel



Biodiesel is an alternative fuel to petroleum diesel obtained from used fryer oil. It can be used in engines by itself or mixed with petroleum diesel at varying concentrations.



Biodigester



The domestic biodigester is a system used to produce flammable natural gas (biogas) and fertiliser (digestate) from organic waste by methanization. Biogas is a mix of gases primarily made up of methane, which can be used to supply a gas burner or boiler, or as fuel for engines.



Biofilter



The biofilter is made of a reservoir of water and porous materials (such as clay balls), sheltering decomposing microorganisms. This method known as nitrification transforms compost fluids or urine into fertiliser.



Bioponics



The fecal matter of fish (aquaponics), crickets («cricketponics») or human urine/compost fluids (bioponics) are transformed into consumable nutrients by plants grown in a hydroponic system, which in turn purify the water



Coconut oil soap



Its possible to make your own soap with commonplace products. The chemical reaction to create soap is called saponification and needs two reactants: a fatty substance and a strong base. Here the fatty substance is coconut oil derived from ripe coconuts, and the strong base is caustic soda.



Biosand water filter



The biosand filter is an optimisation of a classic sand filter used for centuries to filter fresh water before consumption. This drinking water filter uses many layers of grit and sand as well as a bacterial layer. Together, they trap and eliminate sediments, pathogens and other water impurities. The filter can be made anywhere in the world as it uses commonplace materials!



Cycle cargo



To be documented.

United States



Black soldier flies (farming)



The larvae of the black soldier fly break down organic waste in compost very quickly. When they reach maturity, they can be used for animal feed as they are rich in protein.



Desert fridge (Zeer pot)



Refrigeration device that keeps food items fresh, without electricity, thanks to the principle of cooling through evaporation. It consists of two clay pots with a moist layer of sand between them.



Bokashi compost



This Japanese composting technique based on «efficient micro-organisms» (a selection of bacteria) greatly accelerates the biodegradation of organic waste, including meat. It takes place in an airtight container which limits putrefaction, odours and rodent infestations, and can be installed in an apartment.



Drip Irrigation



Cape verde

The water slowly drains to the roots of the plants through a system of pipes. Drip irrigation is a method used in arid areas because it minimizes the use of water and fertilizer.



Ceramic water filter



Created from a mix of clay and sawdust heated to a high temperature, this ceramic water filter purifies unsanitary water.



Dry toilet



A stainless steel bucket receives waste (urine and excrement), toilet paper as well as vegetable matter. The input of carbon-rich dry vegetable matter (straw, dead leaves, sawdust) has to be 30 times that of the nitrogen-rich excrement, and good ventilation is necessary so that the «aerobic» organisms, which need oxygen, can decompose the excrement without emitting odours. After being left for between 6 months and 2 years, it can be re-used in agriculture.



Materials



Security



Communication



Mobility



Hygiene



Housing



Earthquake resistant ecoconstruction



Haiti

To be documented.



Edible crickets (farming)



Thailand

Sources of protein and essential nutrients while consuming very little water and energy, these small creatures combine all the characteristics of a sustainable food source and are commonly eaten in many countries.



Fermented drinks



Taiwan

Fermented food items can be transformed by many micro-organisms: bacteria, yeast, fungi. This results in varying types of fermentation: lactic, alcoholic, acetic, etc... Fermented drinks can be produced from peelings to give us sparkling soft drinks.



Fire extinguisher



South Africa

Fabrication of a fire extinguisher for types A and B fires for less than \$1.



Germinated seeds



Cape verde

A seed or sprout is a cereal or dry vegetable that we soak to soften the skin (integument) and leave to germinate. The seeds and sprouts are particularly nutritious because they contain the highest amount of energy a plant can produce over the course of its life cycle. With a tiny amount of water, these seeds and sprouts shoot in a few days and can accompany a meal or form a salad.



Glycerine-based soap



Cambodia

Creating soap gives us a use for one of the by-products obtained during the creation of biodiesel: glycerol, or more commonly known as glycerine. Using a simple reaction, we can transform it into liquid or solid soap!



Hydraulic ram



Philippines

The hydraulic ram is a water pump that depends solely on the power of moving water, without any external energy input. In practice, it can be used to pump water from a source (river, lake, stream) to be used higher up to irrigate crops, to water livestock or any other domestic use.



Hydroponics



Cape verde

Hydroponics is a soil-free system of farming plants and vegetables which saves water compared to farming in the ground. The roots are placed in a neutral inert substrate (for example clay balls, sand...) which serves as a support. They directly capture the necessary growth nutrients in water enriched with a nutrient solution. This system is useful in environments where fertile ground is limited or polluted.



Improved stove Patsari design



Mexico

The Patsari hob is a furnace design with improved efficiency, developed in Mexico by the organisation GIRA in the 2000's. Simple to build, cost efficient and healthy to use due to the reduction of interior smoke build-up, the Patsari hob is used widely throughout rural communities in Mexico. Patsari means «the one that looks after» in the language of the indigenous Purhe'pecha people in the lake Patzcuaro region.





Kombucha leather



Kombucha leather is a symbiotic culture of yeasts and bacteria. It's an eco-friendly alternative to leather from animals or plastic, as its creation requires few resources.



Lacto-fermented conserves



This principle of conserving food is based on the transformation of glucides in lactic acid by lactic fermenting agents: bacteria, yeasts, fungi. In addition to stopping its decay, they enrich the food by fostering the development of vitamins (C, K, PP, B) and producing enzymes to ease digestion.



Low-tech computer



Computer created from a Raspberry Pi microprocessor and other recycled elements (screen, keyboard, mouse). It offers basic functionality (word processing, internet navigation) for a modest cost (<50 euros).



Internet low-tech



To be documented.



Mealworm (farming)



Mealworms are larvae of darkling beetles who develop in flour as well as in various foodstuffs rich in starch. For human nutrition, these little edible creatures are very rich in protein and in vitamin B12 and offer the advantage of being simple to raise in a small space, however they need daily maintenance.



Milpa Agroecology



The Milpa agricultural method (also known as the three sisters) combines three complementary crops according to the principles of permaculture: the leaves of the squash keep the humidity in the soil, the beans trap the nitrogen and the corn serves as a support for the beans.



Moringa



Moringa is a plant full of benefits. Considered as a super-food as its leaves are a source of protein, fibre, vitamins and minerals, it is also used for medicinal purposes. Originating in India, its cultivation has spread to other geographical regions.



Multifunction foot pedal generator - drill - grinder - sewing machine - blender



Bicycle pedal which can be used to power multiple tools such as a mixer, a pillar drill, a sewing machine or even an electrical generator.



Mushroom cultivation



Rich in vitamins, oyster mushrooms grow on agricultural waste. The farming of these constitutes a good source of food and revenue for many around the world.



Mycological Materials Mycelium materials



Materials derived from mycelium (the vegetative part of mushrooms) and from vegetable fibres is an alternative to alveolar plastics derived from petroleum (polystyrene). It has many potential applications: in design, insulation or even packaging.



Materials



Security



Communication



Mobility



Hygiene



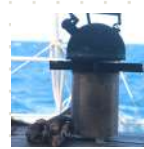
Housing



Palm worm (farming)



In addition to the protein they offer, palm tree worms grow very quickly and hardly need any space. The consumption of insects has happened for centuries in certain Asian and African countries. The palm tree worm features among the most popular edible insects.



Pyrolytic stove



The pyrolytic stove is an efficient, portable wood-fired cooking system with a high energy return, in which the combustion produces very little smoke. The principle of the stove is pyrolysis: the high temperature and minimal air intake allows the wood to transform into charcoal without being reduced to ashes.



Phytodepuration



Purification system of grey water (used domestic waste water) using plants.



Rocket stove



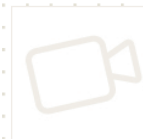
A rocket stove is a type of wood furnace used to cook food or as a means of heating. Its usual structure forms an L. Thanks to an isolated combustion chamber and a vertical chimney, it can reach very high temperatures for efficient combustion. This generates a «rocket sound», hence the name of this invention.



Plastic fibre extractor



The plastic fibre extractor makes thread from plastic bottles. Heated, this thread becomes very strong and can be used as a tie, and the threads can be assembled to make a broom, among many other uses.



Sanitary towels



To be documented.



Plastic pyrolyzer



The plastic pyrolyzer transforms plastic waste into fuel by carbonisation. The plastic, heated to 450°C by the pyrolysis (without oxygen) liquifies then transforms into a gas. While cooling, a part of this gas condenses into liquid. At the end of the process, we obtain two products: a mixture of fuel and one of gas.



Seed bank



To be documented.



Precious Plastic extruder



The extruder transforms melted plastic shavings into a new object by pressing them through a nozzle to shape them.



Solar desalinator



System to obtain fresh water from saltwater thanks to evaporation caused by exposure to the sun. Pure water evaporates before condensing on a glass pane. The condensation (fresh water) is then gathered.





Solar dryer



Mexico

This solar dryer can dry fruits and vegetables using the heat from the sun's rays while ensuring cleanliness, in particular by avoiding contact with dirt or insects. Sun drying is a method of food conservation allowing us to enjoy fruits and vegetables all year long while keeping their taste and nutritional value.



Young shoots



Singapore

A seed or sprout is a cereal or dry vegetable that we soak to soften the skin (integument) and leave to germinate. The seeds and sprouts are particularly nutritious because they contain the highest amount of energy a plant can produce over the course of its life cycle. With a tiny amount of water, these seeds and sprouts shoot in a few days to accompany a meal or even make a salad.



Solar lamp



Philippines

Lamp constructed with used materials in which recycled lithium batteries are recharged by a small solar panel.



Zero waste



Japan

Quick, cheap and eco-friendly recipes for cosmetic and cleaning products: toothpaste, dish soap, sun cream, etc.



Solar Ovens



India

In the form of a box or a dish, this solar cooker concentrates solar rays to generate heat and cook food.



Spirulina (cultivation + pool)



Madagascar

Spirulina is a micro-algae which has been around for 3 billion years. A super-food, spirulina is rich in protein, vitamins and iron. It can be grown in a container filled with saltwater. On the Nomade des Mers, spirulina is fed by a supplement of urine (a source of nitrogen and phosphorus) and a solution of rusty nails for iron.



Thermosiphon solar water heater



United States

This passive system heats water thanks to solar energy (the greenhouse effect created by a window on a dark object). This system works without a pump, using the thermosiphon method.



Materials



Security



Communication



Mobility



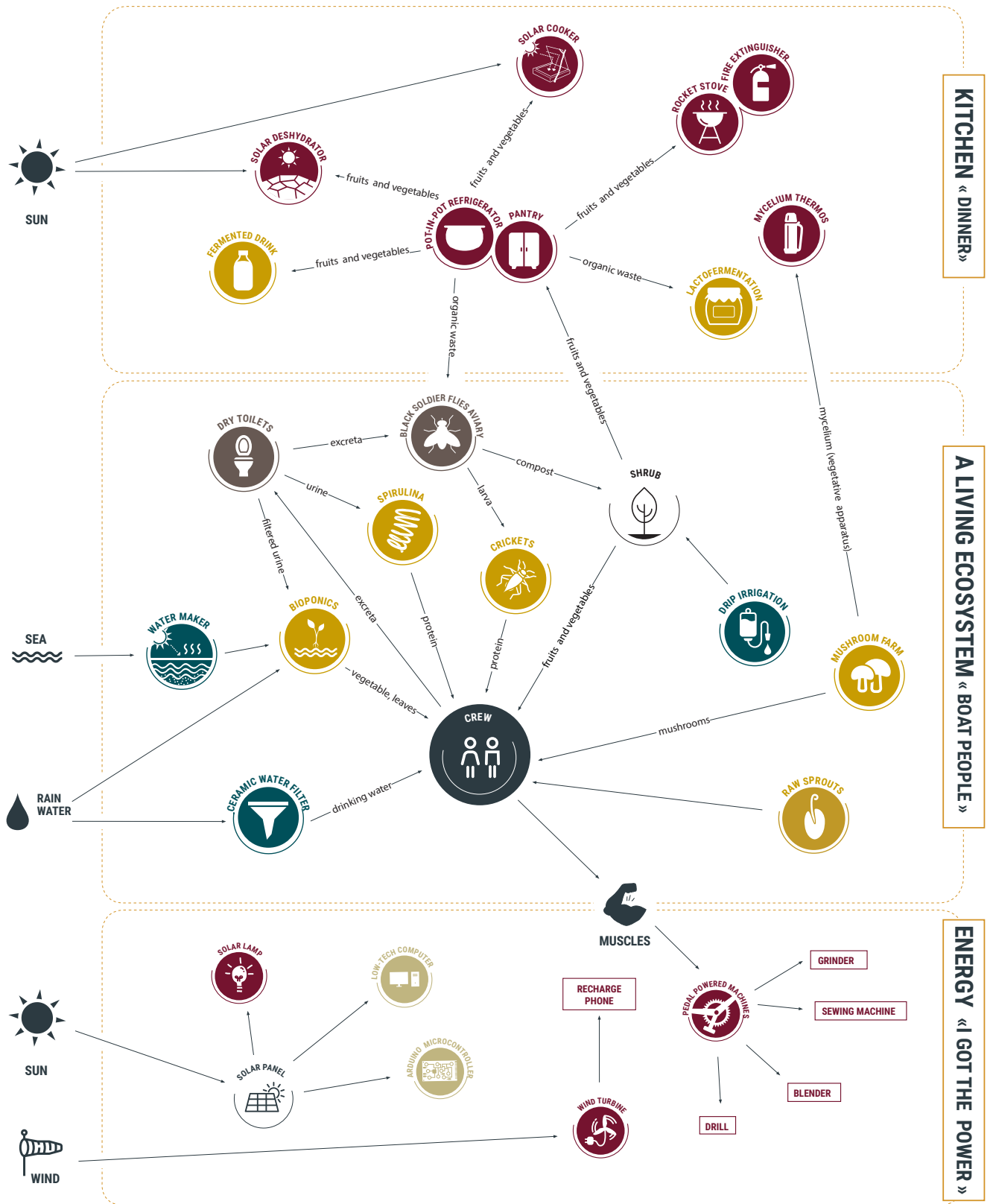
Hygiene



Housing



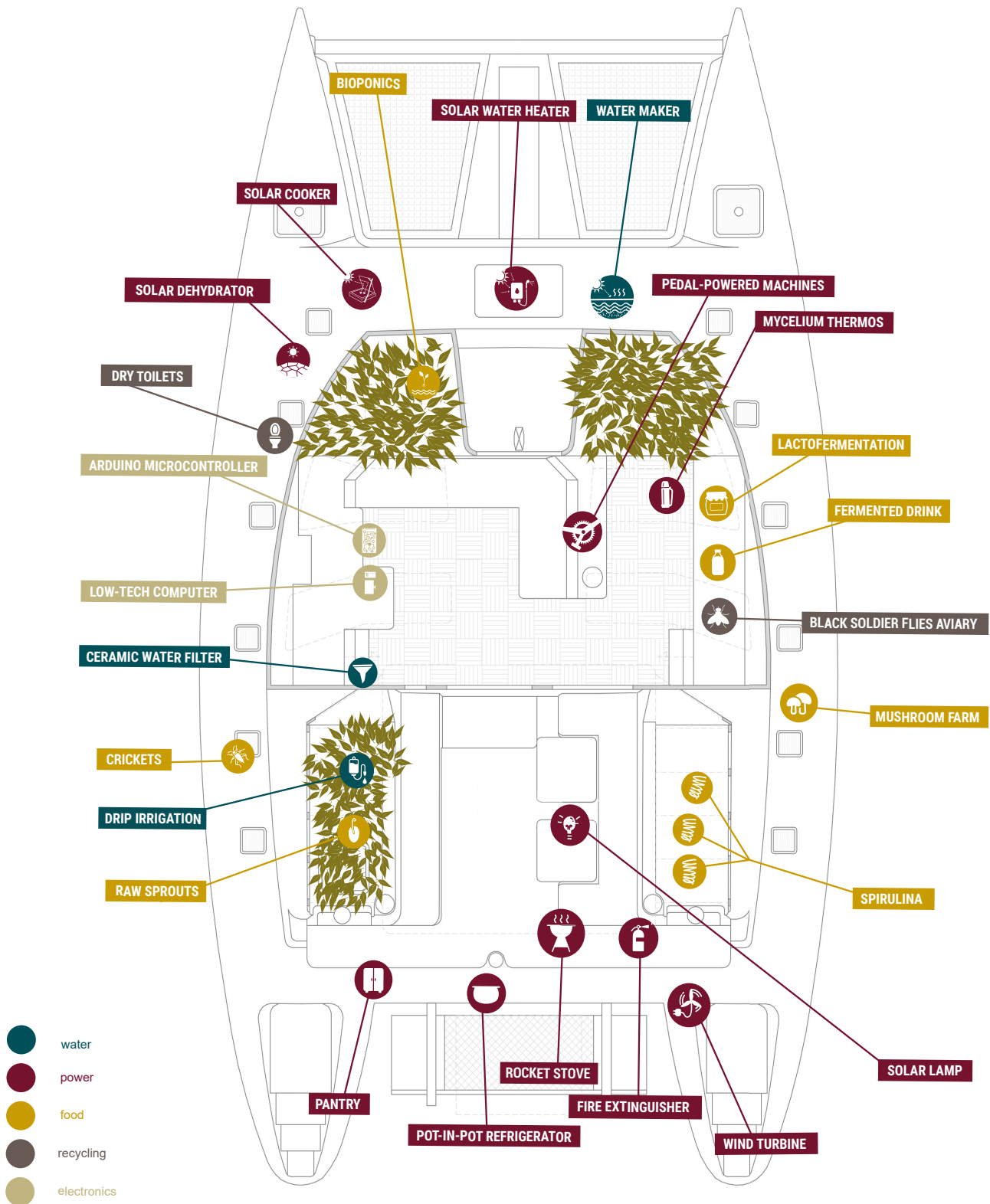
«Aboard the Nomade des Mers, there is no waste, only resources that nourish an ecosystem» Corentin Chatelperron



Additional techniques

Zero-waste : Cheap and eco-friendly recipes of cosmetics (toothpaste, detergent, soap...)

Rainwater catchment : to drink, to water plants, to wash up, to cook.



613

Initiatives spotted in 80 countries

25

Episodes for Arte documentary series

2

Books

63

Low-tech documented

2

Movies

1

MOOC on low-tech



In 2020 low-tech ramped up a notch as more and more low-tech communities emerged in France, Europe and around the world. Low-tech Lab has developed **collaborative tools** to allow everyone to access low-tech and to accompany the emergence of a society in which technology will be accessible, useful and sustainable.

Low-tech directory and calendar

Get to know low-tech contributors in your area, find training sessions and companies and see events to come. To allow everyone access to low-tech, Low-tech Lab shares its database! In order to remain continually updated, the platform is collaborative and each individual can participate to find a low-tech contributor or event nearby.

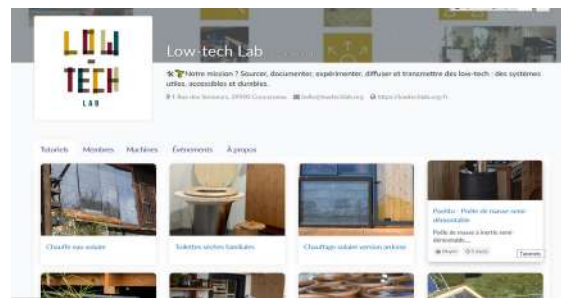


Low-tech Explorers on the hunt!

A Low-tech Explorer is a person/group of people accompanied by Low-tech Lab to actively take part in the indexing and documentation of low-tech technologies and lifestyles! This exploration can take the form of a great adventure dedicated to low-tech, of an addition to your holidays, or simply of something to fill a few days here and there to discover the projects nearby! One thing is sure about the search for low-tech solutions; it means meaningful encounters, huge discoveries and receiving a healthy dose of inspiration!

The wiki platform for tutorials

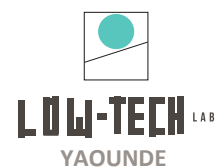
Collaborative, open-source and accessible all over the world, Low-tech Lab's wiki platform compiles step by step, easy to understand tutorials on how to construct low-tech products!



Local Low-tech Lab communities

A global network for a territorial approach

Because in the low-tech approach, it is essential to connect ourselves to local needs and the resources available in each particular territory. The foot soldiers of the on-site installation of low-tech solutions, local Low-tech Labs began to emerge in 2019, born from the willpower of local groups to unite to raise awareness of low-tech. Today, close to 40 collectives in the world participate in the network activity of local Low-tech Labs co-ordinated by the association. These local Low-tech Labs contribute to bring to life the low-tech philosophy on a local scale through raising awareness and holding workshops/training sessions. Low-tech Lab provides them with tools and "communs" (exhibitions, posters...)



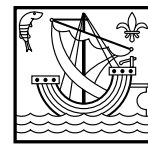
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