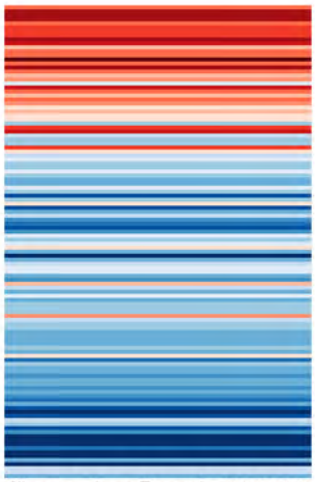
EARTH CARE PEOPLE CARE FAIR SHARE FUTURE CARE



Climate stripes: Tanzania 1900-2019

SDGs we tackle in Matemwe:

Regenerative Agriculture in Matemwe, Zanzibar

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REPORT 2020

DADA

Moto

Who we are, our objectives, our projects

Antje Foerstle and Rainer Vierkoetter engage in local community projects, serve as assistance to local government institutions, from 1994, in the field of facilitation, implementation and empowerment of novel and sustainable initiatives to improve the social and economic aspects of the delicate nature, energy, climate and food scenario in Zanzibar.

Chumbe Island Marine Park, Unguja (1994-98)
assistant management, ranger education, intertidal and under water nature trails in English and Swahili
Misali Island Marine Park, Pemba (1998-2000)
survey of reef, zoning proposed to and approved by Marine Institute Dar es Salaam, ranger education and nature trails
Moto - Community Based Handicraft Network (2003 - 2012)
initiators, co-founder, educators, designers
Moto - Workshop and Handicraft Museum, Pete (2003 - 2010)
initiators, curators
Solarafrica.Network
renewable energies, solar cooker, solar drier, solar power,
(evolved independently into Moto Solar)
initiators, co-founders, ex-members, supporters and advisers
Dada Cooperatives Network Food and Cosmetics (2008 ongoing)
initiators, founders and supervisors
Mbuyu Mabundi Food Forest, Restorative Agriculture, Permaculture, Education and Income Generating (2017 ongoing)
initiators, educators, designers, consultants and project management
Climate Crisis Responders
Adapted designs in agriculture for restoration of productive systems, for food security and resilient and prospering communities (2018 ongoing)
Practical Permaculture Institute Zanzibar - PPIZ
active support and collaboration, board member (ongoing)
Upishi Mama Matemwe
Cooperative of DADA food and cosmetics producers (ongoing)
initiators, supervisors and employees
Certified Permaculture Designer
teachers, trainers, activists (ongoing)

Publications:
Marine Green Book - Encyclopaedia of Zanzibar's Marine Life (1996)
Ukili - The art of plaiting in Zanzibar *(the book is in English and Kiswahili)* (2006)

All above projects have contributed and are contributing to improve the social and economic aspects in Zanzibar. Under the premise of the protection and restoration of the natural environment the overall goal is to build food security and income by implementing regenerative agriculture and forestry practices, renewable energies and efficient consumption alternatives in Zanzibar.

All projects are affiliated to the Department of Forestry and Non-Renewable Resources, Ministry of Agriculture, Natural Resources, Livestock and Fisheries, Zanzibar.

Vision for the 2020s

What we have learned and achieved shall be taken to the next level in order to speed up the impact needed to mitigate the effects of climate change, to establish resilient local communities and to build food security for the islands. We are envisioning this by partnering with local and international organisations and institutions seeking support through funding and capacity building and linking tourism, local biodiversity, traditional crafts, local communities, alternative and renewable energy, restoration agriculture, fair trade markets and health for the benefit of Zanzibar, and the world.

Following the permaculture principles **earth care, people care, fair share, we hope to contribute to the government's main goal to eradicate poverty and build and strengthen local capacity within the agenda to mitigate the effect of climate change.**

wise use of our resources for sustainable development in

ZANZIBAR

DADA COOPERATIVE 'UPISHI MAMA MATEMWE'

The cooperative **Upishi Mama Matemwe** consists of 46 members.

Elected leaders and one appointed trainer and logistician work under our supervision and learn how to direct a cooperative-owned enterprise.

The leaders' responsibilities include pre- and post-production and administration.

We provide **continuous input** about scientific facts or regulations on production related hygiene, management of human resources, administration and connecting to markets.

We are in communication with the start-up social enterprise **Kazi Yetu** from Dar es Salaam and the South african NGO **Grounded** about growing organic ingredients for teas by local farmers such as moringa, dried fruit and fruit peels, and herbs.

The German company **All your Senses** has expressed interest to market the Dada Ecosmetic line in Europe, and to use the cooperative to custome-make cosmetics under her own label.

We are linking business opportunities and restorative agriculture.

We are creating new markets by inspiring hotel managements to incorporate new dishes in their menues.

For example, the yam is an excellent staple that can be grown in Matemwe, instead of importing Irish potatoes from mainland Tanzania.

Or, instead of relying on salad greens from Iringa, in future hotels can source perennial greens locally.

DADA&MOTO shop in Zanzibar, Stone Town, Hurumzi 416 continues to serve both as outlet for community-made produce, and as showroom for interested buyers.

BAOBAB
CASSAVA ROOT
SWEET POTATO
BREADFRU

GLUTEN FREE, FIBRE
SUN DRIED, HAND P
RODUCED BY D

RESTORATIVE FARMING LINKED TO FAIR TRADE MARKETS BUILDS LIVELIHOODS AND FOOD SECURITY

DADA *Wholesome Food and Natural Cosmetics*

A PROBLEM BECOMING A SOLUTION

REUSING BOTTLES SAVES BRICKS

Turning waste into resources

The evolution from the Kituo cha Jua into the cooperative's work space has resulted in the need of two extra rooms.

To save natural and monetary resources whilst introducing a new appropriate technology, discarded glass bottles provided by **Zanrec** were integrated in the design of the walls. **The women were trained hands-on and have come to appreciate the acquired skill.**

Bottle building proves to be economically viable and serves as an excellect example of turning a problem into a solution.

NO MORE RESOURCES GOING TO WASTE

With appropriate technology waste can be turned into a resource for the benefit of people and environment.

REUSE REDUCE RECYCLE REFUSE

APPROPRIATE TECHNOLOGY

Two plate clay stove

This stove works on the principle of maximising energy consumption through air flow, disposition, materials and insulation.

Reduced fuel consumption while providing a smoke-free kitchen.

- Is able to be understood and maintained by the people using it.
- Is affordable.
- Reduces energy use — electricity, labour, fuel, firewood, etc.
- Uses natural, renewable energy whenever possible.

We use appropriate technology to help to **improve the quality of life** while allowing communities and countries to protect their land and the environment, and progress to a **sustainable future**.

This toilet model, commonly referred to as the **Vietnamese Double Vault,** consists of two above ground water-tight tanks, or chambers, for the collection of humanure.

Alternating, one chamber is being used while the second is sealed to allow the content to decompose safely. After six months the obtained compost can be applied safely to fruit trees. This toilet model allows for usage of as much water as required for maintaining personal hygiene. Urine and washwater are diverted and automatically irrigate and fertilize strategically planted banana or bamboo.

Bread baked in a black pot using **renewable and free energy** - the sun.

Sunlight is abundant, and low-cost locally built **solar dryers** can keep out postharvest pests or excess humidity to obtain high quality spices, grains, pulses, teas, and dried fruit.

← **Thermal solar cookers** use the sun's rays and focus them on a black pot placed in the middle. They are especially convenient for the production of food or crafts with high energy inputs, such as the cooking of pulses or the dyeing of palm leaves.

By using the sun's renewable energy **less carbon** is emitted into the atmosphere and energy cost savings can be invested in other projects.

University of DSM are designing solar cookers to be produced in Tanzania

home aquaculture system for food security

NATURAL RAINWATER STORAGE

Plants filter the water

To avoid overfertilisation and low oxygen levels, the water is pumped by a 14W solar pump into a gravel filled plant bed. Here it runs through the root system of papyrus, water taro, canna, and impatiens and runs back into the open cistern clean and oxygenized.

Rainwater fills the pool

This open cistern is designed for multiple functions. On the surface grows water salad (Pistia stratiotes) that cleans the water and which can be harvested for mulch whilst providing habitat for aquatic fauna, and duckweed (Lemna minor Lemnar) that can be fed to poultry. The pool is home to local catfish (kambare) and tilapia (perege) that can be harvested for food.
To keep the water temperature low and limit evaporation a UV resistant shade net usually covers most of the surface area.

On our permaculture farm we **catch and store** as much water off our roofs as possible for irrigaton purpose.

Whilst there are water tanks and covered cement cisterns, a pool can also function as water reservoir.

To obtain the most benefit, we have designed this open reservoir as an aquaculture system.

Basically, we are mimicking a **natural pond**.

Immediately, insects and birds are attracted to the water, and so are amphibians such as frogs.

Tilapia and catfish live in the water, finding habitat and food in floating vegetation and from the algae covered walls.

Another additional source of protein for fish in the pool are insect larvae.

Once the fish have reached the desired size, they can be harvested.

RESTORE NATURE

Garden ponds and natural swimming pools are becoming increasingly important for wildlife, as natural habitats are lost due to inappropriate farming methods and unsustainable urban development.

CHLORINE-FREE POOLS ARE HEALTHY FOR ENVIRONMENT AND HUMANS

DADA

Zanzibar Cooperatives Network

BAOBAB

AN INDIGENOUS AND PERENNIAL SOURCE OF SUPERFOOD

Matemwe is known for its many baobab trees (Adansonia digitata) which can live for hundreds of years. We have come to understand that baobab trees can be relied on in building **resilience and food security.**

To promote their use, we have taken fruit, leaves, kernels as main ingredients for innovative **Dada branded products.**

To date there are ready-to-use chutney, jam, candy, syrup, soap, body oils, face mask, foot and bath salts, and fruit and leaf powder is available as cooking ingredients and nutrition supplements, to be followed by high-protein kernel flour once a production unit is in place.

Young baobab leaves have a pleasant nutty flavour and are **extremely high in nutritional value.** They can be eaten in salads, or as a vegetable. The younger the tree, the more palatable the fresh leaves are.

visit the DADA Shop in Stone Town Hurumzi 416

Zanzibar's most innovative Healthy Food&Cosmetics Producers

CORAL FOREST REGENERATION

Natural resources are the key to future prosperity. The natural environment must be protected and repaired.

Growing a forest for food, shelter, and medicine

Natural ecosystems are resilient and can provide the inspiration to establish equally multi-functional systems to meet humans' needs.

We are using indigenous plants to help **regenerate** the degraded landscapes. Whilst those are best adapted to local conditions, they can be used both as pioneer species to accumulate much needed organic matter for future farming or to **restore natural habitat for wildlife.**

In restoring natural systems, negative weather patterns can be reversed, soil rehabiliated, and positive output maximised for both local inhabitants by obtaining larger yields, as globally by **sequestering carbon** at the highest rate.

FROM SOME TREES TO FOREST TO AGROFOREST

This forest can become an example for other communities who have understood that their **livelihoods** and a healthy and productive **ecosystem** are inseparably linked.

In our case, we allowed the natural forest to regrow taking out only few invasive non-indigenous species. In other words, instead of investing money and work we invested in time and **let nature do her work.**

However, depending on the communities' objectives, a natural system can be combined with selected cultivars as in a **permaculture food forest.**

These **satelite photos** document the evolution from **degraded coral rag** into a **natural forest and living ecosystem** unleashing the potential to turn the sun's energy into food, fuel, habitat, and natural beauty.

Observation of the natural patterns and cycles of nature helps us to make better plans

MMFF Mbuyu Mabundi Food Forest

A Permaculture Community Project

The **Matemwe Forest** is at the heart of our strategy for restoring the local environment.

The natural coral forest provides many opportunities for learning from nature and through regenerative income opportunities such as forest tours, collection of medicinal plants and much more.

Knowledge about resilient and productive natural systems and effective strategies derived from this can make farming **more productive and resilient to negative impact of climate change.**

The creation of a **demonstration site** including food forest, innovative horticulture and education centre with and for the local communities will give first-hand examples for local farmers and inspiration for visitors alike.

Our local communities have understood the benefit of **long-lasting agricultural systems.**

We are hoping to putting the children and youths at the centre of our action plans as they will be the ones maintaining the food forests in the future.

Meanwhile we are already hosting three **bee colonies**, have started a **nursery**, have improved the **garden** around the cooperative's house and are working with slow solutions.

We are reaching out for assistance and funding in order to turn the ambitious plans into a reality.

A healthy natural forest has many different layers of vegetation, such as ground covering plants and tubers, vines, herb layers, brushes and bushes, medium sized trees and tall emerging trees.

By replacing indigenous species with cultivars where appropriate, plant and animal produce is on multiple layers, not just on a single one as in a monocrop field and therefore **providing higher overall yield.**

A food forest is not a new idea for Zanzibar.

It reflects in an established shamba, a **polyculture system** mixing trees and bushes (perennials) and annuals (vegetable, grains, tubers) or bi-annuals (tubers, herbs).

A well-managed food forest can supply us for hundreds of years with nutritious food, fuel, shelter, medicine, clothing, clean air, clean water, and natural beauty.

In natural environments a greater diversity of plants and animals leads to a healthier, more balanced environment.

PERMACULTURE COURSES AND 'HANDS ON' SEMINARS

COLLABORATION WITH PPIZ

Since its creation in 2015, the **Practical Permaculture Institute Zanzibar** in Shakani has been active in teaching the basics of **permanent agriculture** in Zanzibar.

Ten people from our communities have earned the **Swahili Permaculture Design Certificate,** of which nine received full sponsorship through PPIZ.

The students were chosen through participatory decisions by the cooperative Upishi Mama Matemwe, the sheha's local representative, by alumni and ourselves.

Most students feel overwhelmed after the intensive two-week course. Therefore we conducted a follow up session of 12 days with alumnis from **Matemwe** and **Pongwe**, and the interested members of **Upishi Mama Matemwe** on the cooperative's site in Matemwe.

Teacher **John Elaizer** focussed on the local environment, and by combining lectures and hands-on trainings, planning, planting, and maintaining, the cooperative's site now features **the beginning of a productive perennial garden**.

Visits to existing shambas and kitchen gardens with all participants helped create awareness on how to grow food near home.

Matunda kila nyumba

In the recent past, our villages' appearance has changed.

Where formerly goats and exposed rock were predominant, some houses now feature banana, cassava, sweet potato, pumpkin, beans, fruit trees and much more.

In future, we are hoping to establishing even stronger links with institutions like **Barefoot College** and **Zanzibar Technology and Business Incubator**, and reach out to other communities on the islands, in order to build food security and mitigate the negative impacts of climate change.

PERMACULTURE LECTURE IN MATEMWE WITH TEACHER JOHN ELAIZER

PERMACULTURE TRAINEES

We have taken on those Matemwe **'Swahili Permaculture Design Course'**-graduates who expressed a genuine interest in restoring the degraded environment and adapting farming practices accordingly. They are receiving further training through films and books and through lectures where appropriate.

However, the biggest impact in building knowledge and confidence has been achieved through offering the alumni hands-on experience on our permaculture farm by providing them with an environment where they can try out their acquired knowledge and where they can experiment with and test new techniques whilst not risking their livelihood as they receive a small stipend.

Additionally, the alumni experience the evolution of a perennial system under the challenging local conditions, and they get to know a number of food plants that formerly where unknown to them.

This helps them to gain the confidence to establish their own **perennial systems** and also encourages them to share knowledge on an informal basis with like-minded local farmers.

PERMACULTURE AND EDUCATION HANDS ON - a long term strategy to establish food security, resilient communities and mitigate impact from climate change

NURSERY

We are propagating as many different indigenous and cultivated plants as possible. Some will be planted on our permaculture farm, others are for the community food forest, others still for local farmers and others for hotel gardens.

By mixing indigenous and cultivated species we are creating resilient biodiverse perennial systems that will provide us with nutritious food, materials for construction, fire wood, clean air, rain, whilst mitigating the effects of climate change thus contributing to a sustainable future.

We are hoping to inspiring others to establish their own nurseries. Not only can more people grow their own trees from seed thus saving money, but they can sell surplus and do business, too.

We are propagating edible and ornamental, indigenous and naturalized species such as:

baobab, tamarind, java plum, moringa, mulberry, mbangai, bungo, oyster nut, Pemba palm, chaya, soap berry and many more.

RESTORATIVE AGRICULTURIST

Restorative agriculture - seeing is believing

Silima Ajem, fisherman and farmer in Matemwe and Upishi Mama Matemwe cooperative member, successfully participated in the Swahili permaculture design course in the Practical Permaculture Institute Zanzibar in 2016. He is working on establishing a **food forest** for his family, explores **bee keeping** and successfully keeps **poultry** for an income. He is sharing his knowledge readily and teaches interested neighbours. He is also learning hands-on on our permaculture farm and in the cooperative's garden refining his skills even more.

In December 2019 he traveled with the **PPIZ permaculture** teacher **John Elaizer** to Arusha where he experienced permaculture in various environments.

He has understood the potential of permaculture and is dedicated to make food security a reality.

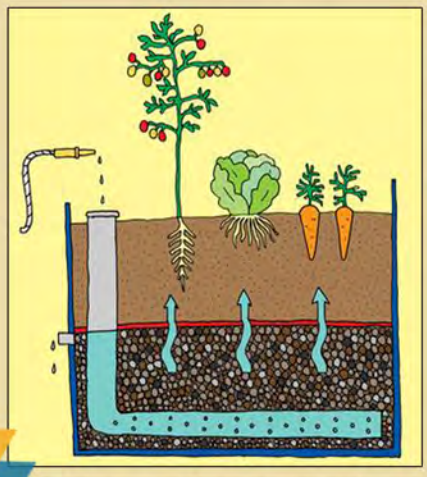
FAIR SHARE OF KNOW-HOW

80% LESS WATER THAN TRADITIONAL IRRIGATION

REDUCED WATER CONSUMPTION

WICKING BEDS

'SELF-WATERING' IRRIGATION SYSTEM



wicking - acting to absorb or draw off liquid by capillary action.

The name comes from the capillary properties of candle and lamp wicks.

A **wicking bed system or self-watering system** is used in areas where water is scarce, or where there is little space such as in suburbs, towns and cities. The principles can be applied both in the ground or in containers, and crops can be grown in deserts, on verandas, in green houses and on roof tops.

The system is designed to intensify food production while using up to **80% less water than traditional top down irrigation.**

By mimicking groundwater the plants take up only the water they need resulting in stronger plants less prone to desease.

This principle can be applied on micro-scale using a bucket, or can be gigantic such as done in urban roof-top-farming.

DADA

Zanzibar Cooperatives Network

ZANZIBAR COOKING-CULTURAL EXPERIENCES

COME AND COOK WITH MAMA MATEMWE

Intercultural Interaction

Come and Cook Together!

On production days, the **Dada** cooperative **Upishi Mama Matemwe** invites guests to join the cooperative and **get active!**

Visitors are shown to cook a healthy traditional Zanzibar sauce based on tomato, chaya leaves and freshly grated coconut, or prepare baobab fruits growing on magnificent trees on the Matemwe ridge and turn them into delicious and healthy baobab jam or chutney.

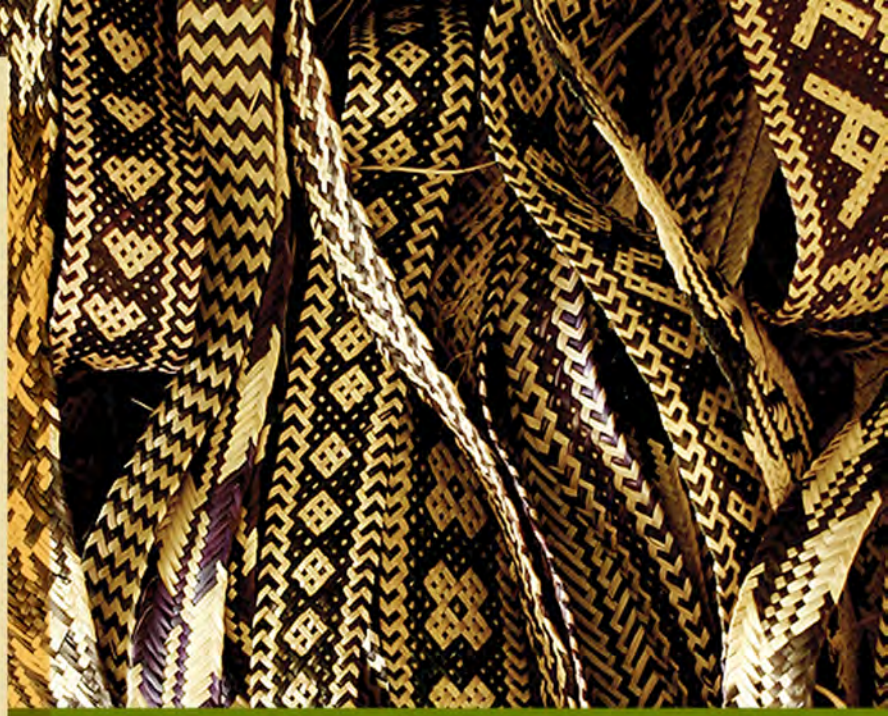
After cooking and packaging visitors can take home their own Dada products.

Cooking together offers a unique opportunity for foreign visitors to appreciate the cooking culture of Matemwe communities hands-on.

Our expert women readily share their skills mostly unknown or forgotten by the majority of urban residents.

The women show guests how to fetch water in buckets, cook on wood fires, use the wooden mortar to powder grains, seeds or spices, quick-dry ingredients on palm woven mats, and in this way help visitors to reflect on their own kitchen environments and consumptive habits.

Cooking together can be an exceptional learning experience for both foreign visitors and Matemwe women: it nurtures respect and open-mindedness for each other and caters for a universal human need - ***food.***



"Apparently, there is very little reference to this craft, and the realisation of this book is the testimony to the wealth of skills among the women of Zanzibar.

Undoubtedly, the book shall provide a good reference to some of the superb plaiting patterns, which otherwise were considered non-existing in the coastal areas of Tanzania.

Over the last five years I have witnessed the improvement of ukili products and designs to which the author of this book, **Antje Förstle**, has put personal initiatives.

I would like to take this opportunity to express my gratitude to her.

Now that the finest ukili patterns of the Tanzanian coast have been documented, let's make the best use of it! "

DR. BAKARI S. ASSEID
former Director– Department of Commercial Crops, Fruits and Forestry, Zanzibar
(quote: Ukili, foreword - 2006)

UKILI - The Art of Plaiting in Zanzibar

A book by Antje Foerstle

(in English and Kiswahili)

"This book has reaffirmed how the **Wild Date Palm** (Phoenix reclinata) can best be used to produce an **environmentally friendly craft**, the ukili."

The book „UKILI - The art of plaiting in Zanzibar" by Antje Foerstle is available at:

MOTO&DADA Shop in Zanzibar, Stonetown, Hurumzi 416 or order at 0777 466304 or mail to dada@dadazanzibar.net