

Research Notes...

Innovative Projects

Dennis Hardy

In September 2022, Seychelles hosted an EU-funded conference under the banner of *BlueInvest Africa* (<https://blueinvest-africa-2022.b2match.io/>). Well-attended, virtually as well as in person, it offered a unique opportunity to showcase the work of ocean innovators from across Africa. A small selection of these is offered here. The section of the journal entitled 'Research Notes' usually tells of more conventional academic projects but this, instead, provides an insight into practical research at the cutting edge. It is exciting, imaginative and important as a demonstration of the ongoing transition to a more sustainable use of the ocean that surrounds the African continent. Thanks are due to the contributors for sharing their experience and for reviewing draft entries for the journal.

Kenya

New life for coconuts

The Kenyan company Kentaste is based, quite simply, on a range of products made from locally-grown coconuts. Started in 2011, it is now a very successful business. The model developed makes good sense, centred on a single factory where the coconuts are brought and processed to create a variety of food and cosmetic products. Presently, there is a local workforce of 200 engaged in processing and packing, who are treated well and know that what is sold is governed by fair trade principles.

Since our humble beginnings we have grown to over 200 permanent employees who make only the finest virgin coconut oil, coconut milk, coconut cream, desiccated coconut and coconut flour for our customers to enjoy in their cooking, and as part of their health and beauty routines... Our modern factory is located in Ukunda, Kenya, just a short walk from the beautiful Diani beaches and the majestic Indian Ocean. Every single one of our products is manufactured here by our team of 98% Kenyan staff because we believe in local opportunities for local people.

In turn, there is a network of 3000 coconut suppliers in coastal communities in the south of Kenya, most of whom are Organic and Fair for Life certified. For these small farmers, the change in recent years has been dramatic, as the coconut industry across Kenya had for long

been in decline, with old trees producing lower yields. To create a sustainable industry, Kentaste has been working with farmers on seedling projects and has planted around 100,000 trees over the past three years. Farmers have been quick to see the benefits of working with a company that has their own interests at heart, not least of all in offering a premium price for their crop.

As well as satisfying the Kenyan market, most of the output is exported, in large quantities, to Europe. One of the features of Kentaste is that this model could be replicated in other tropical locations where coconuts, once grown in profusion under very different circumstances as a plantation crop, can be restored in importance and in a way that befits a modern society.

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Seychelles

Sustainable fabrics from organic fibres and seaweed

Mariette Dine is a graduate from the University of Seychelles, where she first had the idea of making fabrics sustainably by using invasive and exotic plant materials. She was, at the time, studying for her BSc in Environmental Science, and following an online business course under the Tony Elumelu Foundation Programme 2019. She then pursued her MSc in Marine Science and Sustainability, where, through the encouragement of her tutors, Dr. Nuette Gordon and Dr. Jerome Harley, the idea soon became a business reality. Under the name of M.eco-fabrics, the process starts with the use of organic thread derived mainly from banana ‘trees’, invasive vines, palms and seaweed, with potential for other exotic plant sources. In the words of a recent newspaper report:

I do the processing myself with simple tools such as knife and water. I then twist the fibres together to produce yarn for weaving. This can also be done with banana trees but requires a lot of patience and hours to get enough fibre to make yarn. The work is tedious but it is worth it. With support from various institutions and stakeholders, M.eco-fabrics has a bright future.

With the help of a modest start-up grant, Mariette set her sights on the business potential of the project. Her parallel work as a model gives her an insight not only into discerning products but also on the waste that is an offshoot of the fashion industry. Her approach is entirely sustainable and one wonders whether, in time, the making of the thread itself can be outsourced to homeworkers as a source of income for local communities.

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Cape Verde

Clean water from the sun

Building on his father's experience of over 41 years in applications of solar power, Dario Traverso is an energetic entrepreneur responsible for a range of projects in Cape Verde and, most recently, Somaliland. The mission of Genius Watter[sic] is to provide access to clean and affordable water, powered entirely through the sun. In the words of the firm's prospectus, they are offering a sustainable solution to solve the world's water scarcity issue by redefining the traditional way of supplying water in off-grid locations.

Our patented solar reverse osmosis desalination technology, 'Genius RO', simply runs 100% solar powered without batteries. The system desalinates and purifies any kind of water and makes fresh and affordable water available for any need, operating autonomously in rural environments for the next 30 years. This is made possible by long-term operations and maintenance activities. Indeed, the Company remotely monitors and manages the systems for predictive maintenance and rapid troubleshooting, and ensures local assistance thanks to locally trained professionals.

A novel twist for clients is that payment is through a monthly fee for the water produced, rather than an up-front investment in the necessary plant. In this way, consumers can enjoy a water supply service at affordable prices. This sustainable business model is called 'Water as a Service'. The potential for increasing the supply of drinking water, especially in remote communities, and also in giving a boost to tourism and agriculture in Africa, is enormous.

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Mauritius

Transforming a hidden harvest

At just 27 years of age, Yohan Gallet made a dramatic career change. Trained as an airline pilot, he changed course to devote his time to developing a more sustainable form of agriculture.

I finally made the choice to join the new generation of oceanic entrepreneurs to preserve the world's marine ecosystems, while playing a key role in combating food insecurity and climate change.

His homeland, Mauritius, has an unwanted record for its heavy use of pesticides and he wants to change that. The way forward, he believed, was through the use of natural materials from the sea, hence the name of his enterprise, Sealife Organics. Each day, a new supply of seaweed is washed onto the beaches and most is left to waste. Yohan, however, saw its potential to enrich farmland and he set about developing products such as environmentally-friendly compost, potting soils and fertilizers – all rich in carbon, calcium and potassium. Launched in 2020, he has ambitious plans to achieve new markets, matched by a realization that harvesting what is left on the shore will need to be supplemented by domestic and large-scale cultures to meet a growing demand. As well as selling direct to farmers, there are targets in Mauritius for households and commercial nurseries.

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Tanzania

A new life for old plastics

Plastic waste on land as well as at sea is the raw material for an inventive representation of the circular economy. EcoAct, a young company in Tanzania, has developed its own process to convert discarded plastic into a usable commodity. Its durable product, 'plastic lumber', has a variety of eco-friendly applications in construction, furniture-making, fencing and other uses.

We use chemical free and energy conserving plastic extrusion technology called 'Waxyu Technology' to recycle and transform post-consumer waste plastics, packaging materials and agricultural waste into durable and environmentally friendly plastic lumbers. Plastic lumbers are an affordable alternative to wood timbers...

Through a network of collection points, EcoAct offers opportunities, for women and young people especially, to supplement limited incomes. An added innovation is that payment can be made in the form of medical insurance vouchers to enable members of the community to receive healthcare which might otherwise be beyond their reach.

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Seychelles

The ultimate catch

Because of the scale of tuna fishing in the western Indian Ocean, along with other fisheries on an industrial scale in the region, there is a prodigious amount of discarded equipment. Unwanted rope and nylon nets, buoys and steel chains, are dumped in heaps around the port of Victoria and are also washed ashore on the islands of Seychelles. Brikole is a recent start-up business dedicated to clearing the residue of a giant fishing industry and putting what is presently waste to good use. The new venture has come about as a result of cooperation between the government, major fishing companies, and NGOs. As always, though, with innovative businesses, little would come about without the drive of particular entrepreneurs.

A regular supply of materials is now guaranteed through an agreement with fishing companies, which provide Brikole with unwanted equipment. Presently, this is sorted locally and then sent overseas to specialist recycling units. The aim, though, is to provide its own recycling plant in Seychelles. In the words of one of its founders:

Maybe in one to two years, we will be able to establish our own recycling facility in Seychelles. By introducing recycling in Seychelles, we do not want to focus only on nets. Nets will only be a start and once we know the ins and outs, we will then move to everyday plastic. We will be able to see the different types of plastics being brought to Seychelles and how we can reuse and recycle them.

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