



**Green
Opportunities for
Developing
Economy
Conference**

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Decentralised Ecotechnologies for Rural Development

Dr Ilan Adler

*Royal Academy of Engineering Enterprise Fellow
Engineering for International Development Programme Director
Civil, Environmental & Geomatic Engineering Dept.
University College London (UCL)*

*CEO, Founder
EcoNomad Solutions, Ltd
London, UK*

www.economad.co.uk

Partners:



Sponsor:



Project: Awareness Raising for Civil Engineers on Green Economy
Grant Program: EU Funded *INNOVATION AND CHANGE IN EDUCATION*
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Livestock agriculture has environmental impacts

- 1 Agricultural waste products account for 10% of greenhouse gas emissions.
- 2 The EU alone produces 1.4 billion tonnes of manure per year.
- 3 Increasing pressures on land use and environmental regulations.

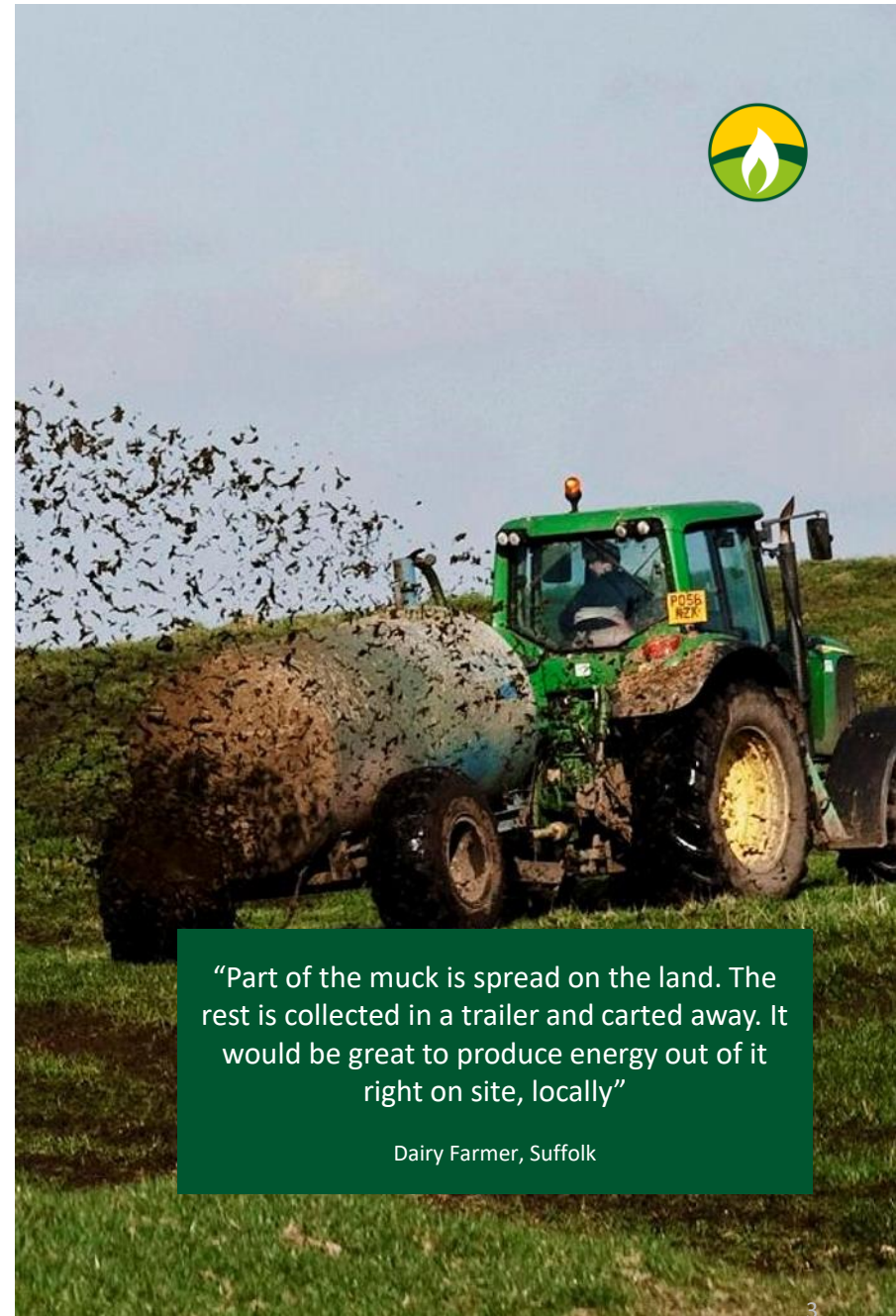


“If all the cattle in the world joined together to start their own country, they would be the third-largest emitter of greenhouse gases”

UNFCC, European Commission, UNFAO

Small farms need help to address the issue

- 1 Over 90% of farms in the UK and Europe are smallholdings.
- 2 Their current animal waste disposal practices are inadequate.
- 3 Alternative treatment systems, e.g. centralised Anaerobic Digestion plants, are hard to obtain and operate for smallholdings with limited resources.



“Part of the muck is spread on the land. The rest is collected in a trailer and carted away. It would be great to produce energy out of it right on site, locally”

Dairy Farmer, Suffolk

The way we see the solution is...



Mini-scale biodigester adapted to cold climates with a range of onsite appliances, plus services to increase value for the smallholding farmer

1



Affordable

2



Creates
additional revenue
stream

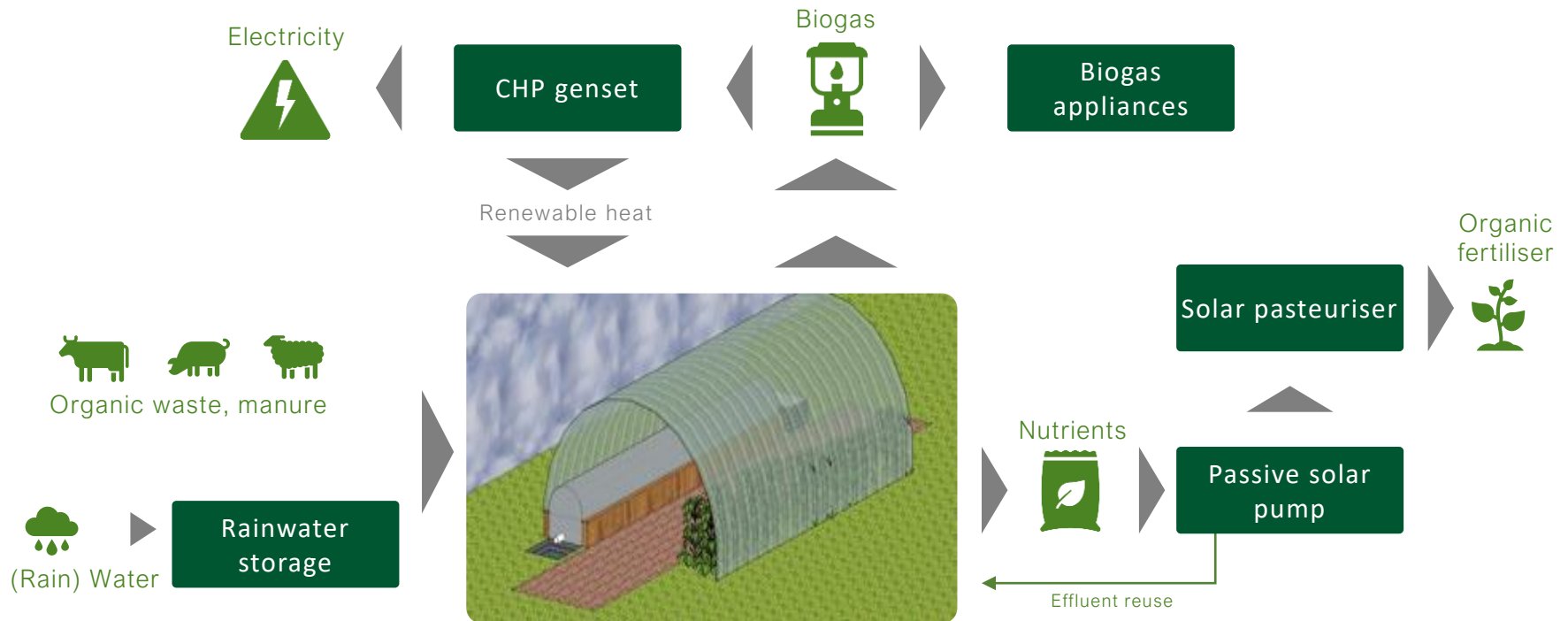
3



Simple to install and
operate (DIY)



Smart eco-technology for sustainable agriculture




BioNomad™ – Integrated waste-to-energy solution



Modular design with plug and play add-ons for operations with minimal effort.



Tangible benefits for the small farmer

 **Manure**
200m³ per year
10 cows at 20m³ per cow

 **(Rain)Water**
116m³ per year
58% dilution ratio



Biogas

£705 per year
14,096 kWh at 0.05 per kWh



Fertilizer

£1,169 per year
613 m³ at £3.7 per m³



Disposal cost saving

£1,000 per year
200 m³ at £5 per m³



Illustrative example of solution value for a smallholding with 10 cows



Cost £7,000

Savings / revenue p.a. £2,874



Full pay back **2-3 years**





£26bn market opportunity for the first three years



Small farms with livestock



Market opportunity



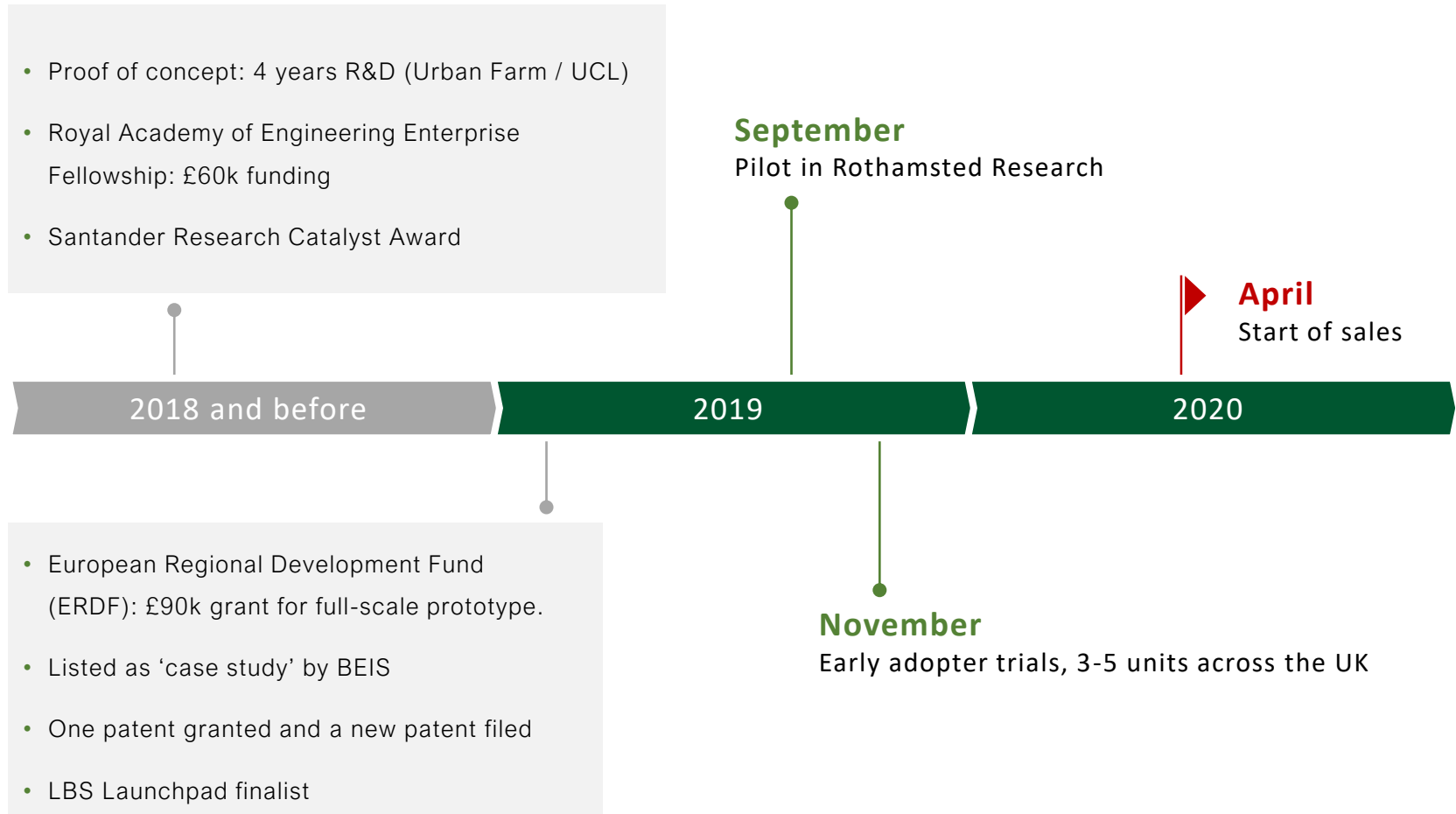
* We estimate that 70% out of all smallholdings, might be suitable for our product.

Source: Eurostat, 2018

* Based on assumed minimum £7,000 spend per farm.

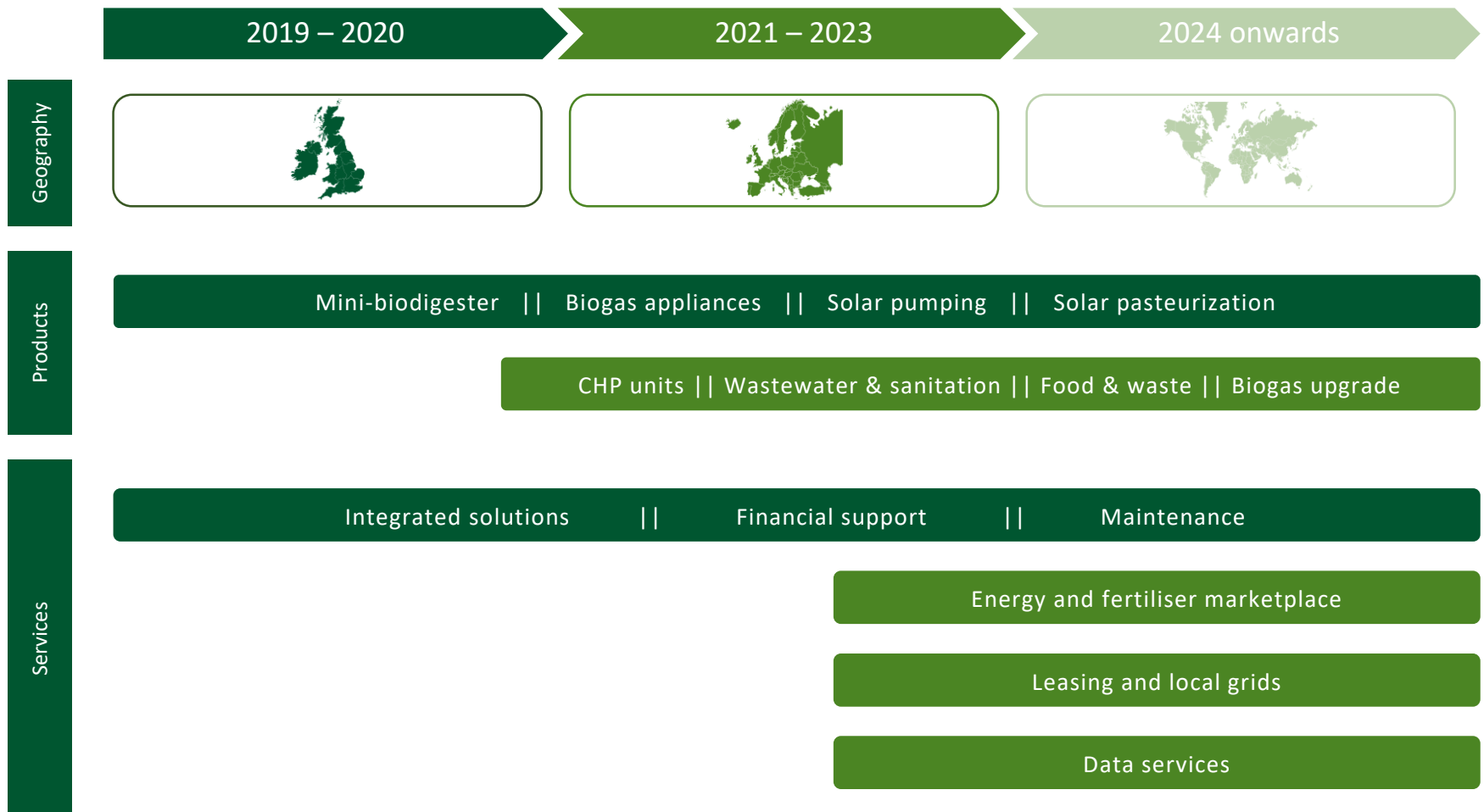


Major achievements and immediate plans





Business model will gradually shift from products to services





Experienced team has right mix of skills



Ilan Adler, PhD

Founder, CEO

Technology development



Alex Demenko, MBA

Co-Founder, COO

Business development



Marcelo Elaiuy, PhD

Engineering Design

Biogas modelling



Yashvini Shukla

Social Media & Communications

Advisors

James Taylor

Experienced farmer, AD operator

Dr Luiza Campos

UCL academic, env. engineering

Peter McKay

Industrial designer & inventor

Our team: Founders



Dr Ilan Adler

Ilan has a PhD in Environmental Engineering. He is an RAEng Enterprise Fellow and Principal Teaching Fellow at University College London (UCL). As an eco-technology expert, Ilan has worked in solar technology and AD worldwide for over 10 years and co-developed a number of products. He founded EcoNomad Solutions as part of a Royal Academy of Engineering fellowship awarded in 2018. He has vast entrepreneurial experience and has founded 3 companies and a charity (IRRI-Mexico) in adjacent sectors.

Alexander Demenko

Alexander is an MBA alumnus from London Business School and has more than 15 years of diverse business experience in international environments of various sizes. He worked in multiple industries, incl. among others manufacturing, supply chain and logistics (DHL), financial services (AXA), management consulting (KPMG), and specialized in strategy, business development and operations.

Our team: Advisors



James Taylor

Farming expert and trainer at Surrey Docks Farm for over 20 years. Responsible for operation and management of pilot biogas systems onsite. Obtained degree at Askham Bryan College, with later work in various horticultural projects in Germany, including the Berlin Botanical Gardens. He is involved in product design and monitoring strategy.

Dr Luiza Campos

Associate Professor at University College London (UCL), with over three decades of experience in wastewater and water treatment innovations, filtration and anaerobic digestion. Mentor and former PhD supervisor of Ilan Adler, provides invaluable link with academia for R&D purposes and supports numerous grant applications.

Peter McKay

Peter is an industrial designer and inventor based in Liverpool, with more than 30 years of experience designing eco-technologies for the developing world. He holds an original patent for the earlier version of our thermal-solar pump, licensed to the company, and actively supports ongoing technology development.

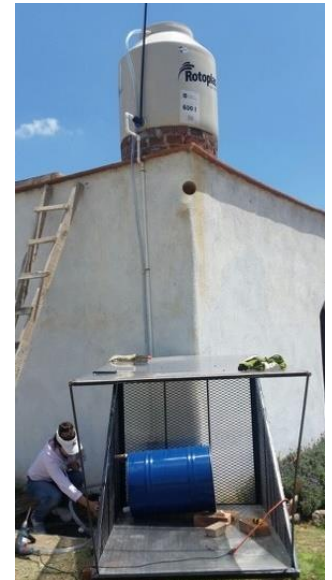


Work in progress: mini-biodigester proof of concept





Work in progress: passive solar pump and pasteurisation development



Partners we work with



Supported product development in lab and field trials through student projects and small grants



Provided Enterprise Fellowship covering salary, seed funding, business training and mentoring



Professional product design and prototype manufacturing support



Rothamsted spin-out, co-developing complementary solutions for biogas upgrading and combustion



AgriA/ERDF funding and piloting facilities for BioNomad™ system, incl. lab and monitoring support



NGO sharing expertise of over a decade installing community biodigesters



Early proof of concept testing, support in product design, customer feedback



Manufacturing and design company, UK based, partner developing heat exchange solutions



Scientific Research Institute of Yucatan (Mexico). Providing research staff and solar testing facilities



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practical eco-technologies for efficient and sustainable farming



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