

# PROJECT PARTNERS



**UNIVERSITY OF GREENWICH**  
([www.gre.ac.uk](http://www.gre.ac.uk))



Representative:  
Prof Patricia Harvey

The University of Greenwich contributes to solving real-world problems, and advancing issues that have a direct bearing on business, regional and international communities and ultimately, peoples' lives. Researchers have extensive links with industry and commerce, public sector bodies and policy makers, and support our objective to be a research-informed institution, where students benefit from the experience of academic staff carrying out leading edge research, and consultancy with business.

The Bio-Energy Research Group of the University is engaged in a series of multidisciplinary projects aimed at developing the technologies and value chains of second-generation liquid / gas biofuels associated with plant-based systems. These projects can be grouped into four themes;

- Developing new biofuel and green chemical feedstocks;
- Processing plant biomass;
- Exploiting energy stores of plants through Combined Heat and Power (CHP) systems;
- Developing biomass (plant and algal) supply chains

The diverse projects within these themes range from the investigation of the properties of plant oils and by-products obtained from terrestrial plants; micro-algae; the potential of plant and agro-industry “wastes” as a resource to deliver low carbon solutions; anaerobic digestion and thermochemical treatment of food and agricultural “wastes” for biomethane production; solid biomass and handling of waste plant lignocellulosics; fermentation of glucose from starch and sugar; to enzymes for lignocellulose biodegradation.

The University of Greenwich's Bio-Energy Research Group has developed knowledge of the biofuel oil industry through its collaborative projects with bioenergy technology companies, the farming community, CHP and fuel companies and energy companies exemplified by projects such as the Kent Biofuels Project, which is an integrated process for the production of biodiesel from oilseed rape; the Zerowise Sustainable Food Waste Solutions Project; the creation of an Electricity Supply Company (Cantium Energy) in 2009, established with a loan from Finance South East to supply midi-scale CHP operated on renewable biofuel; and the provision of analytical services and consultancy to renewable energy industry majors.

Professor Pat Harvey trained as a plant biochemist from Durham University then spent 2 years at Genzyme Biochemicals in business development before leaving to conduct research into the biochemistry of lignin breakdown at Imperial College, then Greenwich University. Unravelling the nature and mechanisms of catalysis of the enzymes deployed by white-rot fungi to trigger lignin breakdown in lignocellulosic materials led on to applications in treating lignocellulosic waste streams and hydrocarbon decontamination, and fundamental research into the plant and fungal oxidative metabolic pathways associated with production of oxidative catalysts. Renewable energy, biofuels and the use of algal and non-food plant systems for CO<sub>2</sub> capture and the synthesis of novel chemicals are now a major focus of her research, which includes expertise in analysis, extraction and catalysis of plant and microalgal energy reserves, and researching solutions for food and plant-based ‘wastes’ for energy extraction; plant growth in contaminated /



degraded environments, and the whole issue of establishing global plant-based supply chains to meet future needs. She is a Board member of the European Algal Biomass Association and has served on European Co-operation in the Field of Scientific and Technical Research (COST) management committees Action 859 (Phytotechnologies to promote sustainable land use and improve food safety [w3.gre.ac.uk/cost859](http://w3.gre.ac.uk/cost859) ) and Action 837 (Plant Biotechnology for the removal of organic pollutants and toxic metals from wastewater and contaminated sites <http://lbewww.epfl.ch/COST837/>) as chairperson of WG1: Organic pollutants: metabolic and enzymatic studies. She is currently Head of the Bioenergy Research Group at the University of Greenwich.





**TURNER & TOWNSEND**

[www.turnerandtownsend.com](http://www.turnerandtownsend.com)



Representative:  
Merita Wickens

Our African clients' business models mean that their requirements are, in many respects, unique within the context of a competitive global environment. Our Turner & Townsend reputation of making the difference is based on a single minded commitment to find the best way to achieve the greatest benefit for every client – a commitment to find the potential for going beyond the expected, and the capability to put that potential into practice.

This commitment has won us many awards over the years. Much more importantly, it has helped us to build long term partnerships with an ever increasing number of global and African clients who value the difference we make to their business. We aim to provide consultancy support that capitalises fully on our global experience to deliver practical, measurable benefits, with the extra dimension of innovation that will help you gain the greatest possible advantage in the process of advancing from where you are today to where you want to be tomorrow.

At Turner & Townsend we take a partnering approach with our clients. Strong alliances and a culture of teamwork within the group create an integrated effort to deliver fully on requirements. We recognise the nature of the role designated to our commission managers and our responsibility for advising on, directing, controlling and co-ordinating all aspects of any commission. Turner & Townsend is committed to providing services to clients so that they can:

- Achieve their project within their allocated budget allowance and timescales.
- Maximise the value of their investment.
- Minimise the risk.

Our staff has the capability to offer a comprehensive range of services, providing innovative solutions for the successful realisation of the most complex and demanding projects. Turner & Townsend has considerable expertise in the financial, commercial and contractual management of mining, commercial, industrial and infrastructure projects. Areas of expertise include:

- Cost management
- Mining, Industrial & Infrastructure Cost Control
- Energy
- Contract services
- Project management
- Management solutions
- Facilities management (including facilities management consultancy services, strategic property and asset planning, facilities management, and property services)
- Public Private Partnerships Consultancy

Turner & Townsend has been the recipient of more than 25 awards over the last few years, including the 2009 Project/Construction Manager of the Year, the SAPOA 2007 Overall Project of the Year, and the 2009 Queen's Awards.





**SAM NUJOMA MARINE & COASTAL  
RESOURCES RESEARCH CENTRE,  
UNIVERSITY OF NAMIBIA  
(SANUMARC)**  
([www.unam.na/centres/henties/about\\_sanumarc.html](http://www.unam.na/centres/henties/about_sanumarc.html))

Represented by Prof Edosa Omoregie  
and  
Dr Larry Oellermann

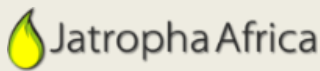


SANUMARC serves Namibia through promoting research and development activities in the field of marine and coastal resources, taking into consideration the unique comparative and competitive advantage of the Benguela cold current ecosystem. Research conducted at the Centre towards developing the fisheries and agriculture sectors complements what is done by the Ministries of Fisheries and Marine Resources as well as Agriculture, Water and Forestry. The Centre is part of the United Nations University, as an Operating Unit of its Institute for Natural Resources of Africa, based in Accra, Ghana. SANUMARC was established with a view to promote sustainable and responsible utilization of Namibia's coastal resources for the benefit of all Namibians; and to undertake appropriate research to benefit the resources and to share the benefit/experience with land-locked countries in the Southern African Development Community (SADC) region, and beyond.

SANUMARC aims to be a research facility, a teaching & training hub, a technology demonstration centre and to provide extension services. SANUMARC actively seeks out local, regional and international partnerships in order to benefit from the research and technologies needed to implement that already exist elsewhere in the world (i.e. alternative energy technologies, expertise in mariculture, coastal agriculture etc.). The Centre has seven research priorities, including mariculture research and development, marine algae R&D, mushroom R&D, coastal agriculture and plant biodiversity, renewable energy sources, water resources, and the coastal environment. It also aims to assist disadvantaged communities in the Coastal region by providing expertise and helping to source funds. Areas include the promotion of mushroom production, assisting with horticulture development projects, the promotion of the use of biogas as a low cost source of energy, and the promotion of uses for beach cast seaweed. SANUMARC also encourages school visits to stimulate interest in science among youngsters.

The Centre is located on a 98 hectare site, just to the north of the town of Henties Bay. It provides immediate access to several unique ecosystems, including the Benguela cold water current of the Atlantic Ocean, the Central Namib Desert, and the ephemeral Omaruru river catchment area, with its major groundwater aquifers. A little to the North of the Centre is the Cape Cross Seal Colony (the largest breeding colony in Namibia), Welwitschia Plains and the Skeleton Coast National Park. To the South is the busy fishing port of Walvis Bay, and the Namib Naukluft Park. Infrastructure includes an administration building, which houses offices, library, boardroom, herbarium & microbiological laboratories; a Mariculture Research Building; a general wet laboratory for practical teaching; accommodation for students and visiting scientists; a hall with lecture facilities; a mushroom house; a greenhouse; and a large workshop/shed for vehicles and storage.





**JATROPHA AFRICA**

[www.jatrophaafrica.com](http://www.jatrophaafrica.com)



Representative: Clive Coker

Jatropha Africa is a biofuel feedstock company, founded in 2006. Our commercial activities include:

- supplying Jatropha seeds for cultivation and for oil expelling,
- growing seedlings in our nurseries,
- harvesting, supplying Jatropha oil for Pure Plant Oil and for biodiesel refining companies.

We manage extensive land agreements and farmers' networks, working in partnership with rural African communities, assisting people in their efforts to improve their own lives. Besides the standard *Jatropha curcus* seed which is found widely across West Africa, we also offer an improved variety of *J. curcus* which is well suited to being cultivated on land that is marginal to food production, and provides a high yield of seeds, with high oil content.

The improved variety of seed

- shows visible high yielding benefits over the standard variety found in West Africa.
- grows more vigorously,
- produces a small earlier harvest, and
- provides higher seed yields over the years leading up to plant maturity.

For the past 4 years we have managed our own nursery and 100 Hectare Jatropha farm. We are negotiating a joint venture with a European biodiesel company with plans to expand our method of Jatropha cultivation onto the 50,000 Hectares of land over which Jatropha Africa has agricultural rights. As part of this proposed joint venture, we will be setting up a commercial scale Jatropha oil-expelling facility. A joint venture between Jatropha Africa and European partners makes sense; although we have yet to find efficient, effective oil expelling facilities that can produce cold expelled Jatropha oil locally, machinery suited to this task is available and used in vegetable oil production in Europe. Also, although there are no commercial scale biodiesel production facilities located in Ghana, bio-diesel refineries using well developed technologies are in operation in Europe. In addition, pelletising, pyrolysis, anaerobic digestion, bio-ethanol from woody farm wastes are technologies which are complementary to non-food biofuel production in Africa. Jatropha Africa's contribution to the ACP S&T Programme's Biofuel Project results from invaluable experience gained through the negotiation of land lease agreements in areas where commercial food production has not been viable, and the formation of a company in Ghana, with directors who combine European and West African approaches to business and operation management, including European business management experience and Ghana-based farm management experience, and Jatropha cultivation know-how, demonstrated on a 100 Hectare farm. The company is also a supplier of an improved variety of Jatropha seed – an asset which is in short supply whilst large scale Jatropha plantations are being established, and has established good links with relevant government ministries and agencies, e.g. Department of Energy, Department of Agriculture, and the administration body for the lake and rivers in the area which is well suited to non-food biofuel feedstock production. The company also has good links with approx 40 Ghana based Jatropha farmers, and an understanding of establishing trust, and maintaining goodwill with Tribal councils as land freeholders and sources of labour. Lastly, our co-founders Clive Coker and Ohene Akoto are considering forming a trade association for biofuel farmers and producers in Ghana.





**THE MARINE BIOLOGICAL  
ASSOCIATION**

[www.mba.ac.uk](http://www.mba.ac.uk)

Representatives:

Dr Richard Pipe and Dr Declan Schroeder



The Marine Biological Association (MBA) is a Learned Society and one of the UK's leading marine biological research institutes. Our mission is to promote scientific research into all aspects of life in the sea and to disseminate to the public the knowledge gained. The MBA was founded in 1884 and in 1888 opened the Plymouth Laboratory at Citadel Hill. The MBA has earned an international reputation for excellence and innovation in research, by the resident scientific staff and visiting research workers, including seven Nobel laureates. The laboratory in Plymouth has provided facilities since 1888 for in-house and visiting researchers. Some of the earliest research at Plymouth was to identify the marine life present in the area. Those surveys now provide valuable data against which to identify how the sea has changed in relation to impacts. The MBA now supports a wide range of research activities from cell and molecular research to understanding ecosystem structure and functioning.

The current research programme reflects the wide-ranging commitment of the Association to the development of marine biology. This covers areas as diverse as cell and developmental biology, neurobiology, physiology and functional biology, reproductive biology and ocean productivity and phytoplankton dynamics. A range of algal and invertebrate species are utilised to investigate fundamental biological problems. Long-term studies of the biology of the English Channel have been supported for more than seventy years and the Association has been instrumental in establishing The Sir Alister Hardy Foundation for Ocean Science (SAHFOS) to continue the sequence of continuous plankton recorder surveys in the North Atlantic and North Sea.

The Marine Biological Association hosts The Plymouth Culture Collection of Marine Micro- Algae (PACC). The PACC operates as a research facility, offering specialist help in isolation, culture and maintenance of marine microalgae, not only for Plymouth researchers but also for the wider international marine scientific community. The Collection distributes approximately 400 culture strains per year: ~50% to Plymouth researchers and the other 50% to national and international academic institutes and commercial users.

The Plymouth Algal Culture Collection advises commercial organisations on suitability of strains and culture conditions required for specific strains. We can screen individual strains for overall lipid content and provide information on growth rates of individual strains. During 2009 we organised a successful international course on identification and culture of marine microalgae.





**CONSORZIO DI RICERCA PER  
LO SVILUPPO DI SISTEMI  
INNOVATIVI  
AGROAMBIENTALI**

( [www.corissia.com](http://www.corissia.com) )

**Representatives:**

Dr Broni Hornsby and Dr Salvatore La Bella



The Research Council for the Development of Innovatory Agro-environmental Systems (CoRiSSIA) is a public research centre formed by the Sicilian Regional Ministry for Agriculture and Forestry, the Department of Environmental and Territorial Agronomy, the Lima Mancuso Foundation, the University of Palermo, the Cooperative ARALIA, the San Remo Institute of Floriculture, and the Italian Ministry for Agriculture and Forestry. Work at the centre focuses on the development of agriculture on the island, in particular in the hinterland and disadvantaged coastal areas, the modernization of production systems in the agricultural sector, and improving the conservation and development of the island's environment, its natural resources and biodiversity. The centre carries out applied research, teaching/training, demonstration and awareness-raising activities. The centre's main area of interest is non-food systems connected to the production of energy- giving plants, biomass, environmental protection and the safeguard of biodiversity. Other areas of interest include marine and inland water systems and water culture systems, water resources, the sustainable use of wastewater and its re-utilization, the treatment of activated sludge, the quality of food produce, traceability and the monitoring of water, air and soil quality. The centre is also active in research on parks and gardens, and turf grass.

CoRiSSIA is currently working on several projects in the agro-energy field, including "Agro- energy - an alternative for the development of the Valle del Belice area", "A study of varieties of *Carthamus tinctorius*", "A Study of varieties of *Brassica napus*, *Brassica carinata*, *Crambe abyssinica* and *Helianthus annuus*" and "A selection of naturalized, Mediterranean species for the optimization of the production of hydrogen from biomass, with a view to economic and environmental sustainability". The centre has also recently started work on a project called "Innovative technology for the use of non-standard water and protection against desertification in Sicily". The project included the construction of a large new laboratory for CoRiSSIA with equipment for the testing of water, soil and plant life (including biomass/oil analysis and energy characterization).

The research centre carries out applied research to promote agricultural and sustainable rural development and to utilize disadvantaged and marginal areas for production and environmental protection; consultancies for the Regional Ministry of Agriculture and Forestry and other regional bodies; the transfer of research results to businesses and collaboration with development services; programme coordination and implementation on behalf of the Regional Ministry of Agriculture and Forestry and collaboration with the Technical Assistance operational Units; industry-oriented research for companies in agriculture and the agro-industry; collaborations with national and international research institutions; internationalization of research and technology; and training of researchers and technical staff.





**UNIVERSITY OF GHANA**  
([www.ug.edu.gh](http://www.ug.edu.gh))

Representatives:

Prof George Wiafe and Dr Adelina Mensa



The mission statement of the University of Ghana Mission is to develop world-class human resources and capabilities to meet national development needs and global challenges through quality teaching, learning, research and knowledge dissemination. The University of Ghana was founded on August 11, 1948 for the purpose of providing for and promoting university education, learning and research under British rule. After gaining independence in 1957, the College Council made a request to the Government of Ghana for legislation to constitute the University College into a University with the power to award its own degrees in the 1960-61 academic year. On the recommendations of an international Commission set up by the then government, the University of Ghana was set up by an Act of Parliament on October 1, 1961 (Act 79). The President of the Republic of Ghana, Dr. Kwame Nkrumah, became the first Chancellor of the University. With a current student population of about 29,754 (representing male/female ratio of about 2:1) the University of Ghana is the oldest and largest of the six public Universities in Ghana. Breakdown in terms of programmes are as follows: Post-Graduate students – 1,816; Bachelors' Degrees – 26,154; Sub-Degrees – 1,784. International students currently enrolled in the University are also 1142. Teaching faculty number ~865. The University of Ghana is a member of the International Association of Universities (IAU), the Association of Commonwealth Universities (ACU) and the Association of African Universities (AAU). The University is also a member the League of World Universities (which comprises 47 renowned research universities all over the world). The University has also established academic and research links with several Universities and Research Institutions worldwide.

Academic life of the University of Ghana is centred on Colleges, Faculties, Institutes/ Schools and Centres of Research/Learning. There are two colleges, health sciences and Agriculture and consumer sciences; Faculties of Arts, Law, Science, Engineering science, Social Studies and Business. Each of these faculties comprise of several Departments offering undergraduate and graduate programs. There are also Research Institutes and Centres offering degrees at similar levels. There are a number of institutes/colleges locally which hold affiliation with the University of Ghana for the purpose of enrolment, teaching and award of degrees and diplomas of the University.

Aside teaching and learning activities, quality research is carried out at graduate and undergraduate levels at collages, Faculties/Schools, Departments and Research Centres. This research goes a long way to influence poverty eradication, training requisite human resource to enhance strong scientific and technological capacity to support research.







**GOLDEX 35 PTY LTD**



Representative:  
Hanneke Laatz

Goldex 35 Pty Ltd which is a Limpopo based Agri-Business Development Company with strong links to international buyers, specialising in the export and marketing of agricultural products such as citrus, table grapes, blueberries and vegetables. At present

Goldex 35 is the only company allowed to export Blueberries and Strawberries to Canada. The CEO has long experience in accessing international markets, with an extensive network of local farmers. After 1995, under the newly elected South African regime, land redistribution was introduced to alleviate the disparities in land ownership. Under this scheme land was redistributed to farmers and growers, some with no agricultural skills or capital and consequently the land became overgrown and commercial production dropped. Given the fact that 89% of the population of Limpopo Province is classified as rural, agriculture plays a major role in the economic development of rural areas of the province. 58,000 hectares are in the hands of black small-scale farmers. The small holder farms are located mostly in the former homeland areas and they cover approximately 30% of the provincial land surface area. Farming under the small holder systems is characterized by low level of production technology and small size of farm holding of approximately 1, 5 hectares per farmer; with production primarily for subsistence and little marketable surplus. The farmers urgently needed alternative high value products to produce dual crops for cash or alternatives to maize which could not sustain them.

In 2005 Goldex identified the necessity for assistance to these farmers to develop agricultural lines for the local and overseas markets to maintain Agriculture output. (According to an estimate by the government it was estimated that there are approximately 303,000 smallholder farmers in Limpopo Province. Women constituted 80% of these small holder farmers). In 2006 the company received a European Grant to research the development of a competitive production and processing industry of Nutraceuticals in Limpopo. During the annual Growth and Development Summit 2007, the company was elected to forge partnerships between National, Provincial Government and Private Sector for economic growth and development initiatives. The areas of responsibility are Agriculture Development; Agriculture processing; and Value Adding in Agriculture. The mandate and main functions are to

- Ensure active participation for emerging farmers and marginalized communities in the Local Economic Development;
- Monitor progress and remove stakeholder blockages and ensure progress; and
- Identify priorities, link stakeholders and implementation.

In 2008 an ambitious project to turn Limpopo into a supplier of high- value essential oils to the international cosmetics and pharmaceutical industries was awarded to the company. The project was supported by grants totalling R10.5 million from the Limpopo Local Economic Development (LED) Programme which were funded by the European Union and implemented by the Department of Local Government & Housing.

Goldex is a company which has the ability and expertise to implement research studies, ensuring the development of commercial, sustainable businesses.

