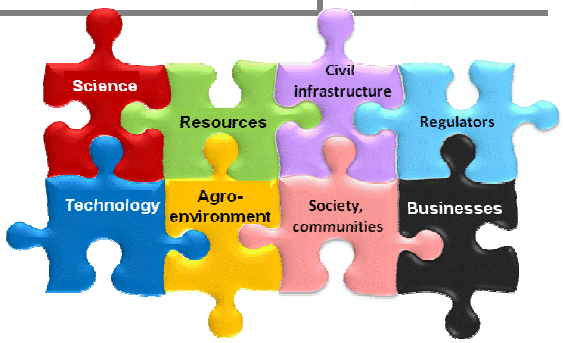
Biofuels Putting together the Green Jigsaw



Project Title:	Capacity Building in South Africa, Namibia and Ghana to Create Sustainable, Bio-oil Supply Chains
Lead	University of Greenwich
Partners	Turner & Townsend (Pty) Ltd, South Africa University of Namibia, Namibia University of Ghana, Ghana Jatropha Africa Ltd, Ghana Goldex 35 (Pty) Ltd, South Africa Consorzio di Ricerca per lo Sviluppo di Sistemi Innovativi Agroambientali (CoRiSSIA), Italy Marine Biological Association, United Kingdom

Reporting Template

Case Study title **Ensus**

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Methods used in interrogation Internet searches, grey literature search, telephone and email correspondence and a face-to-face interview (6th March 2013).

Stakeholders interviewed- title, position in organisation John Pinkney, Technical Director

Any permissions / restrictions on use of information no restrictions

The Biofuel/energy supply chain

The plant is designed to utilise over 1million tonnes per annum of wheat to produce over 400 million litres of bioethanol, 350,000 tonnes of animal feed and 300,000 tonnes of carbon dioxide for food and drink production, per annum.

The case study.

Ensus Group Was bought by two private equity firms in March 2007, Carlyle Group and Riverstone Holdings. This was a management buy-out, so the existing structure and team were retained.

As a group, Ensus define themselves as a leader in renewable energy technology and provider, particularly with regards to the future energy requirements being met sustainably. The Wilton Plant is the first of several plants the company aim to build across Europe in the near future.

The Wilton Plant, constructed on the Wilton International Industrial Park in Teesside, North East England, was first conceptualised in 2006 and completed in 2009. Construction on the 12ha site began in May 2007, with civil work taking place in April 2008, by the end of 2009 Ensus was in the final stages of commissioning and by December the plant was fully operational and the first delivery of wheat had taken place.

Although the plant utilises wheat to produce their bioethanol, it has been designed to also use feedstock's such as maize, barley, corn or sugar beet, should the need arise. This is possible due to the technology the plant uses, which is licensed by Katzen. Katzen are a global company and leading supplier of bioethanol processes in over 35 countries. The technology enables the entire output to be fully utilised over a 72hr conversion process.

In order to utilise all of the feedstock and keep their carbon footprint as low as possible Ensus signed a contract with Yara International (a Norwegian Fertiliser company) who utilises their 300kt of liquid carbon dioxide. To do this, Yara contributed to the project by building a £23million facility close to the plant to extract the product to be used in the food and drinks market.

Ensus further signed a contract with a 10 year supply agreement with Royal Dutch Shell for the purchase of their bioethanol. This reduced the associated risks perceived by the lending banks, as it enabled a guaranteed income stream for at least a decade whilst the debt is being repaid.

Sustainability

Beyond measuring their carbon footprint and full life-cycle chain for their product outputs, Ensus are driven to further reduce the carbon footprint generated by working closely with the farmers who supply the feedstock for the plant to further improve efficiency and yield.

Funding

Both private equity firms (Carlyle Group and Riverstone Holdings) provided funding to the amount of £90million towards the project, with £1.9million in grants being received from the government by means of the Regional Development Agency, One North East. Ensus further received £150million in debt provided by the Royal Bank of Scotland, Société Générale and Calyon. Furthermore, £60million was contributed towards the project by related parties.

When asked whether funding was an issue John Pinkney explained that:

> *Interviewer: How was the project financed? Was it private investment?*
> *John: It's all private investment. It was basically debt and equity raised from the banks and from private equity.*
> *Interviewer: When would you have applied for that funding would it have been prior to the recession?*
> *John: Oh yes, we established our initial financing just before the financial crash, so…*
> *Interviewer: So you weren't affected by the caps on the funding…*
> *John: Well we, yes, we have been pretty effected since, but it was initially established end of 2006/07.*
> *Interviewer: Because some of the companies that I have been talking to have said that there is a cap on the funding available.*
> *John: Well and for other reasons investors are totally spooked now, because of the track record in this sector is turning out to be very alarming for investors.*[transcript, 42-52].

He said that funding now is an issue, as described in the excerpt above, for their project, they narrowly bypassed the recession and therefore some of the funding barriers which other start-up companies have and are experiencing.

<u>Drivers.</u>

The primary external driver for the production of the Wilton plant was the incorporation of the Renewable Transport Fuels Obligation in addition to the EU's binding targets for 2020. This

opened a market for the production of bioethanol within the UK and Europe. Ensus's Wilton plant is expected to supply approximately 35% of the bioethanol required to meet the UK's targets.

Furthermore, given that there is a surplus of wheat produced within the UK, yet we rely heavily upon imported animal feed throughout Europe, this provided further business incentives for the development of the plant.

Support.

When asked what support was important to the project and in particular the support provided by the government, John Pinkney explained that this was the primary support required in order for the project to be successful:

> *I: Were government subsidies, mandates, tax exemptions or any other support important to the start-up or continued running of the business important?*
>
> *P: Well a mandate to include a certain proportion of bioethanol in fuel was the raison d'etre for the opportunity so yes that was highly important. No other subsidies or support or help was forthcoming. Apart from a very small grant based on the number of jobs created. You know a fraction of a percent of the total capital costs. So effectively this was a major private finance initiative that was managed despite the government, not because of the government.* [transcript, 114-120].

Jobs.

According to Vivergo's website they have directly contributed approximately £60million to the local economy up to now, but they envisage that the industry overall could be worth at least £1billion per annum to the UK economy by 2020.

During the construction phases Vivergo joined up with JobCentre Plus which enabled 24 unemployed people to obtain training opportunities, 6 of whom secured permanent roles with the company in highly skilled positions. Additionally, 11 local apprentices worked on the construction site.

Overall, Vivergo will create and support over 1000 jobs. However, the business directly employs 80 people in highly skilled positions.

Business targets and wealth creation.

When asked about their future growth plans and wealth creation John Pinkney emphasised how they plan to run the plant as efficiently and as hard as they can that they enable the carbon footprint to be reduced and economic return to be achieved. Furthermore, John explained how the business targets were affected due to the project running over and the unplanned closure which took place:

> *Interviewer: So did the project in timely as you envisaged as you had planned? Would you say that Ensus is on target again now?*
>
> *John: No, no, no, no, no. As you would expect. No. I mean we started up late in to a much more difficult economic environment than was expected and a market environment which has had the rug pulled out of it by the government not putting in place the on-going clarification and trajectories*

within the legislation that was expected and fully declared at the time we made investment. Yes nothing has turned out as was expected.

Interviewer: Do you see your future growth plans or your future plans shall I say and the company's success in to the future being affected…

John: Well, yes, we see there being a significant business opportunity in this area provided we end up with a sensible set of regulations and it's really wanting the uncertainty to be removed. Once the uncertainty is removed you then know what game you are playing and things will settle down as long as there remains uncertainty then that spooks the market, it spooks the investors and its means there is that uncertainty just causes doubt and doesn't let the, for example, all the indications were that the greater your carbon savings the more valuable the material would be, which would be logical, you know you would actually get value for saving carbon, but that hasn't happened yet, but there is still hope and expectation that it will, but the question is when.[transcript, 276-292]

Training.

The Wilton Plant requires approximately 100 skilled members of staff. Most of who required training.

Local community stakeholder groups.

Ensus received planning permission with little opposition other than some unrest from people campaigning at a nearby factory that were losing their jobs due to the factory closure and having to reassure various stakeholders about their use of wheat not affecting food supplies.

However, not soon after the plant was fully operation it became apparent that there was a problem with the odour coming from their plant. This resulted in a significant number of people, living locally, complaining to Ensus, their local MP and MEPs, media reporting and the Environment Agency. In an attempt to disperse the problem, Ensus doubled the height of their chimneys. This solution did not work and the opposition persisted. The Environment Agency issues Ensus with an enforcement notice which resulted in them investing £9million in two regenerative thermal oxidisers to mask the odour.

Although Ensus communicated with all concerned parties, some residents threatened legal action even though Peter Sopp, one of the company Directors, announced that the company had been considering ways to recognise the tolerance and patience of the public and had communicated as much in both their newsletters they sent out to residents as well as via the media.

Not long after this incident occurred, Ensus announced that it would be closing the plant for a four month period due to poor market conditions and a regulatory loophole that allowed cheaper imports of subsidised US ethanol into Europe.

This actually ended up being a 15 month closure, during which time Ensus retained their 100 plus workforce on full pay throughout. During this period of closure Ensus received considerable support from the community, who recognised (financially) the importance of the plant for the region and also from the local MPs, who worked to have the loophole closed. After a long delay, the European Union's Customs Code Committee acted to close the loophole relating to the tariff system that allowed imports of subsidised US product to distort the market and thus Ensus could reopen.

Ensus now continues to work closely with the necessary stakeholder groups to ensure that the political and regulatory issues do not arise again, as well as ensuring that the UK continues to support renewable energy technology companies in to the future.

Impact on agricultural practice

When asked about how the feedstock utilised may impact upon the agricultural practice John Pinkney explained that the utility of their wheat is actually better than many other feedstock's and that the by their production of animal feed, it is actually better for the environment. He states:

> *John: Well there is a number of components to the message, we have done a lot of work and ended up publishing peer-reviewed academic papers trying to get the message out there and in to the public domain and in to the literature., but you have to keep banging away at a simple message before people really understand, as there is a lot of unhelpful simplistic messages out there as well which you know you are fighting against all of the time. The basic benefits that we have are that the co-product production we are producing a high protein animal feed for the food industry which can actually can back out or replace a lot of soybean meal, which is the main protein concentrate used in feeding animals and which is produced in now largely in South American, it is pretty heavily implicated in a lot of environmental issues and it certainly grows on a lot of land which used to be forested and so as a consequence, we actually help the footprint of meat production and if you look at the land which is released by not requiring that soy to be grown, that nets off against the land which is being used here, so the net land use is almost zero. It's very very small and when you consider that in Europe land has been released from cereal production for the last thirty or forty years and that's where a lot of the set-aside land and so on has been coming from, then all we are doing with using a proportion of cereal production for biofuels or for bioethanol certainly, is that the rate of that land released from agriculture slows down a little bit, you still end up releasing land, but at a lower rate than you otherwise would have done. But those, it's you know, that's an argument that you have to explain to people and it's not one that most people understand. You know most people don't understand that there is a co-product and therefore that bioethanol is actually helping to feed our animals and is helping the food industry. We have, of course, it's a point that a lot of the big food companies ignore or don't understand themselves so we do have a very unhelpful lobbying from the big food companies who are complaining about biofuels. Now it may well be that some of the points that the NGOs would make about it being wrong to grab land in Africa, we would agree totally with that and, but there is a spectrum of different biofuels of different performances, different effects on land, different effects on carbon, different effects on people and certainly European based cereal bio refining doesn't cause any of those problems whatsoever.* [Transcript, 211-236].

Future growth plans and recommendations.

John Pinkney explained that the future growth plans of the company and the plant are very much dependent upon the way in which the industry is regulated and at present he believes more should be done from the government in this respect:

> Interviewer: Do you see your future growth plans or your future plans shall I say and the company's success in to the future being affected…

John: Well, yes, we see there being a siginificant business opportunity in this area provided we end up with a sensible set of regulations and its really wanting the uncertainty to be removed. Once the uncertainty is removed you then know what game you are playing and things will settle down as long as there remains uncertainty then that spooks the market, it spooks the investors and its means there is that uncertainty just causes doubt and doesn't let the, for example, all the indications were that the greater your carbon savings the more valuable the material would be, which would be logical, you know you would actually get value for saving carbon, but that hasn't happened yet, but there is still hope and expectation that it will, but the question is when.
Interviewer: Do you see the plant closing in the future?
John: Well no we hope not, we don't envisage it no, no we expect this plant will, is going to run for a long time and we expect it to do so and at increasing rates. Our plans would be to progressively de-bottleneck it and find ways of running it harder and getting more out of it.

1. Date of Interview:	**6th March 2013**
1.1 Interviewer's name:	Katie Thompson
1.2 Respondent's name:	John Pinkney
1.3 Position within organisation	Technical Director
1.4 Position/role within a Biofuel Supply chain	
1.5 Name of enterprise / project	Ensus
1.6 Location, country	Wilton, England