

protection of communities and wildlife, agriculture, mine engineering, remediation and engineering ecology. We will add significant value and create jobs through the restoration process, providing the goods and services otherwise bought in, with new industry start ups and pilot projects. There will be an overall emphasis on a lean, innovative, inclusive and rigorous sustainable regeneration business plan, stimulating new start up community co-operatives, social enterprises, partnerships, self employed, trades and SMEs.

We have strong links with the Central Scotland Green Network Trust, FCS, East Ayrshire Woodlands and anticipate working in close partnership with these organisations. We expect significant growth in forestry employment and new industries arising from our initiative.

INTEGRATION OF COMMUNITY PLANS. We strongly support the aspirations of communities to shape the future of their landscape and neighbourhood. We seek to work together to incorporate and integrate ideas for sustainable and forest related regeneration. We anticipate a wide consortium of interests in landscape and wildlife, tourism, sport, recreation, planning and resources, business, and employment, education and training. We believe it is possible to get the best for the economy, human needs and nature, delivering community land ownership with added value sustainable economic development. We are committed to regeneration of natural habitats and native species. Continuous cover forestry, for leisure, timber and energy. Forest Stewardship standards and biodiversity. We seek to collaborate rather than compete. A vision for a new forest for Scotland - **Coille Athan Alba (?) - Future Forest Scotland.**

This is a summary of our proposals. Work in progress and open to discussion:

RE-FORESTATION - the core proposal. Using limited top soil, adapted from mine restoration world wide, EADHA/EnviroScience methods enhance natural regeneration. Resulting restoration savings, will fund new, innovative, sustainable forest and industry economic development spin off. "Added value" to restoration bond finance. Jobs, economic development and sustainability. Our method mimics and accelerates the Caledonian Forest development after the ice age. We bring new innovations to reforestation, new products and prospects for new jobs:

- Bulk soil improver for forest planting from a novel design anaerobic digester, composting green waste and biomass, to substitute unaffordable topsoil. Biogas export to the gas grid, cash flow and real clean energy. Huge cost savings over unaffordable topsoil, a new digester product to market.
- Novel low input forestry techniques including ground preparation, cultivation, soil fertility, planting, weed control and maintenance, non toxic, designed for rapid landscape and tree cover, quickly restoring habitats and tree productivity. Novel mechanisation and spin off products to market as start up business.
- Multi-purpose community forestry providing timber, energy crops, amenity, social, economic and environmental benefits, within the framework of the Ayrshire Woodland Strategy and national targets. New timber markets and products, using the project as a springboard.

We anticipate a range of forestry options, all strongly sustainable and landscape sensitive, providing early visual screening and habitat restoration. Continuous cover forestry, native hardwood and softwood timber stands for commercial timber, energy cropping/short rotation of native species, habitat corridors and networks. We seek to optimise the public benefit, maximising access, habitat and amenity value and leisure opportunities, a framework of habitat creation and sustainable production. Forest roads will be designed for multi use flood control, mountain biking, walking, wildlife trails, cross country skiing, disabled access etc.

FARM and FISHERIES - Some former mine void lakes will be retained as lochan landscape features and developed as fisheries both for leisure and commercial, as well as for water habitat and boating. An opportunity for Arctic Char conservation and developing new sustainable fisheries.

Some land restored to organic farming to pilot innovative, commercial, sustainable agriculture. Maximum added value output, as sustainable, organic Scottish food products, marketed online.

FUTURE FOREST INNOVATION HUB - strategically located. Ongoing, international sustainable technology innovation showcase, in a coalfield village centre, an alternative, public library saving use. This will be developed into a hub with training, business support, workshops, school and community liaison, exhibitions and conferences, social events, café, resource centre, drop in. Mining heritage, rural, industrial, social and natural history, arts, performance, business, Visitor and Tourist Information Centre.

Affordable self help, low rent/rent free workspace. Assessment of existing resources such as former mine buildings, for rent free "start ups" SMEs etc. Sustainable, eco design, economic refurbishment of existing buildings.

GLULAM TIMBER ENGINEERING - underdeveloped in the UK. Local opportunities include BGS Geo Park, Visitor centre, timber frame tourist eco cabins, bunkhouses, Eco hotel, restored Glenbuck village and other buildings. New industry launched on innovative, inspiring and economic project buildings. Project springboard within bond finance

TIMBER AND FOREST PRODUCTS - traditional and new. Furniture – mass production and artisan.

FOREST ENHANCED FLOOD CONTROL - EnviroScience has developed a unique design for forest enhanced flood control, with potential to control 10-25% of flood risk volume at 90% cost saving over hard engineering flood controls. The method would be incorporated in forest drainage and landscape design including a novel recycled drainage product for local production, stimulating new jobs.

Urban flood control is by street tree enhanced flood control methods, developed by EnviroScience. Special economically engineered deep boreholes stimulate extra deep tree rooting and flood water control. Urban streets become ecological corridors, leafy neighbourhoods with economic flood control.

URBAN BOTANICAL GARDEN A coalfield town, economically planted as Scotland's "Urban Botanical Garden". Native street trees, shrubs, wildflowers and habitats, economic flood control, green streets, attractive calm neighbourhoods, tourism and local economy benefits. A stunning tourist attraction celebrating Scotland's biodiversity.

GEOPARK INPUT – A world first, living species simulation of a Carboniferous Forest in a tropical biodome. A tribute to the coal forests in the mists of time, lost worlds, changing ecology, leading the visitor to a second tropical rainforest biodome, then spilling outside with more hardy species. Extending up the valley, celebrating Scotland's forest habitats and future forest opportunities, an exciting sustainable future, climate safe, rainforest conserving and reforestation promoting. Enhancing the raw exposed geology and placing it in its ecological context from the Carboniferous to the "Anthropocene". Enhancing the landscape for other activities, Go Ape, zip wire, climbing, biking, trails etc. Modest budget sustainable domes and sustainable timber engineered Geopark Centre. Energy autonomous. An inspiring world class experience.

BIOGAS is an emerging market in the UK, well established in Germany. 50% substitution of domestic gas with biogas is estimated as feasible by National Grid. UK dependence on gas from Russia is an increasing risk to energy security, driving the case for "fracking". Whether in parallel or as a challenge to "fracking", biogas expansion enhances energy security, beyond all natural gas reserves, and is completely sustainable.

An EnviroScience design of modular "Dry Digester", for local development, is expected to break through on cost in the 200Kw plant range, pay back in a year, low capital cost and early cash flow, to support reforestation and employment. Replicable on multiple sites, the flexible size achieved by modular units, a marketable product. Biomethane gas to grid, bulk compost for reforestation. Biomass harvesting and mechanised compost application innovations further supporting economic development and jobs.

Developing countries with rainforests also need biogas for energy security, economic development and forest conservation. Scotland can partner advanced biogas development in the tropics.

BIOGAS FROM WOOD is an emerging technology and market. Reforestation would mean a 5-10 year lag on short rotation forest feedstock. EnviroScience have innovative biomass feedstock concepts to fill the gap and develop further markets. Agriculture can benefit by supplying spoilt silage, hay and slurry, for AD/biogas feedstock, especially in the transition to wood derived biogas.

ROADSIDE VERGES and hedges have been identified as a biogas feedstock opportunity, with thousands of miles in Ayrshire alone. Verges can be harvested efficiently by an EnviroScience concept HGV/harvester. A US road verge pilot yielded 5 tonne/mile. The HGV harvester concept is highly feasible as a start up industry, with a local skills base. Road verge biomass harvesting can also support sustainable road verge management as proposed by Plantlife

BIOGAS/DIESEL HYBRID. In the US, council vehicles have successfully been converted to run on compressed biogas, notably refuse collectors. HGV harvesters, forestry and farm tractors, could easily be running as 25% local fuelled biogas/diesel hybrids. Again a market opportunity, relatively simple, tied in with HGV harvester conversions as start up businesses, to a wider market.

CHARCOAL AND BIOCHAR PRODUCTION from forest waste could substitute UK charcoal imports, much of which comes from developing countries including some having wood fuel poverty. Spain has increased charcoal sales to UK supermarkets, the production clearly cost effective, so feasible in Scotland. Clean charcoal production can also fuel combined heat and power from the charcoal production wood gas. Other by-products from this and biogas can produce bio chemicals including bioethanol.

Charcoal as Biochar, is also a means of toxic land clean up and carbon sequestration.

LOW CO2 SMOKELESS FUEL. CPL Ireland have invested £22m in a smokeless fuel plant producing Ecoal, composed of 50% coal, 33% biomass and 17% molasses. We propose a waste product substitute for molasses, such as a by-product from charcoal or biogas production, for a Scottish Low CO2 Smokeless product. The Irish plant will demand 80,000 tonnes biomass/annum, expanding biomass demand and new planting in Ireland. 142 new jobs, plus more in the supply chain, showing the potential for Scotland.

Reduced CO2 products, can be produced from recovered Scottish coal, wood chip and by products, in phased mine restoration, planned into the future, stimulating energy forestry in Scotland, as in Ireland.

TREE ROOT PILING - LANDSLIDE STABILISATION - An extension of our novel solution to urban flooding has been extended to control landslides. The deep rooting method creates tree root reinforced piles around deep, specially lined boreholes. These will be incorporated in mine restoration projects to address slope stability issues as a demonstration. The design is unique to EnviroScience/EADHA partnership. The demonstration will springboard a specialist sustainable slope stabilisation/landslide protection industry.

FOREST BONDS have been proposed to the Scottish Government by EnviroScience as a funding mechanism for expanding the publicly owned forest, supporting Scotland's world class forest expansion policy and community land ownership. A Scottish lead in vital global forest and conservation finance.

ECO TOURISM. We believe with exciting, vibrant, biodiverse, world leading reforestation, and with cutting edge eco technology, we will create a showcase of sustainability that will attract tourism in itself. We have many ideas for ecotourism and are sure there are many more that can be incorporated by creating a springboard and stimulating modest development sites. Not least, delivering accessible active health to all.

Some possibilities: The rising market for "glamping" and alternative accommodation, the national campaign to re-establish a traditional "hutting" culture, new novel places to stay. Shielling cottages, clusters of Eco cabins and social spaces, recreated iron age hut circles designed as bunkhouses and family huts, camp grounds, off grid with renewable energy, log cabins set within the emerging forest; Maybe a loch Crannog house on stilts. Challenging and easy mountain bike trails, cross country skiing, disabled access, walking and wildlife trails planned into forest access roads, drainage and fire breaks, economically doubling use, by design. Wood fired pottery, art groups, wildlife, climbing, walking, woodcraft, orienteering etc. Sustainable, sociable holiday communities, in wild country. Accessible to local and long distant public transport, long distance cycle routes linking to cities.

GLENBUCK FOOTBALL HERITAGE - icon of Scottish football. Community football camps and tournaments, outdoor and mountain sport and leisure, wildlife, art, culture and heritage etc. Affordable campsite and bunkhouse accommodation, eco build restored village houses, sustainable flood control. Glenbuck is the prime opportunity to stimulate active leisure and tourism, already attracting visitors from far afield. Early job creation and community benefits. Brilliant location, inspiring possibilities. Active leisure.

All these ideas are intended as primers for wider discussion.

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