Big Picture Planning Priorities

The Scale of the Climate Emergency

Behind suggestions in this report lies a foundational understanding of the scale of the global Climate Emergency and the loss of Scotland's biodiversity. Not only do we need the Planning System to support Scotland's commitments to achieve its net-zero targets all the way to 2045 but, along with other government agencies at all levels, it needs to support a radical change in the way our country operates.

Priority & Mainstreaming

All our decision making and actions must now be focused on preventing further climate change, and creating a new way of being and living that cares for our planet and the health and wellbeing of all on it. It needs to be recognised that our current way thinking - economic return and business value first, over the health of our planet and wellbeing of our people- is incompatible with living sustainably with equality and wellbeing at the core, and dealing with climate change.

We need to mainstream a reduction of GHGs throughout all our decision-making processes and structures: a new 'economic' priority which places a healthy, happy, sustainable community at its very core.

NPF4 is crucial in ensuring that all decisions from now on, made at any level in government, have the key consideration of getting to net zero by 2045, while ensuring that the values of a just managed transition, equality, health and wellbeing, resilience and enhancing and protecting biodiversity are key components of those decision processes.

Innovation and Community

Alongside this prioritisation of getting to 'net zero' in all decision making, we feel that it is vital that communities are placed at the heart of our new approach: building community resilience and empowering communities to develop their own energy systems and development plans to enable them to thrive.

In order to meet our 'net zero by 2045' target, we also need to actively stimulate and support all-out innovation on an unprecedented scale.

Long Term Decision Making

The climate emergency is not resolved when net-zero-emissions are achieved: the drive for negative emissions must become engrained in our way of life for the long term. Decisions must be taken for the very long term, for the "sustainable" future rather than the foreseeable future. The decision-making processes will need to accommodate this new way of thinking long term and ensure that the ultimate benefits to society and our planet are factored in, as opposed to the current focus on short term 'economic' returns.

Reprioritising Existing Knowledge and Skills

Here in Scotland, and globally, we have a wealth of knowledge and skills relating to, for example, land-use, green infrastructure, community needs etc. The Planning System should harness such skills and knowledge and place them at the heart of our decision-making process; the knowledge so gathered and utilised will thus play the part of creating the fundamental principles, policies and procedures which will shape the future of this country.

Community Development & Rural Development

Planning plays a huge role in the creation and development of a community and good planning can help foster a positive community spirit. Many communities are now developing their own climate action groups and groups that deal with sustainability matters. Good examples of this are the Huntly and District Development Trust (DDT) and Deveron Projects in Huntly, Aberdeenshire. DDT worked with the community to develop a Huntly Sustainability Action Plan[1] decreasing carbon emissions while promoting local sustainable initiatives. The plan has succeeded so far and has inspired other projects in line with the 'green community' vision, like the Deveron Projects. Specific initiatives include:

- Community Wind Turbine
- Community Woods
- Eco-Bothy with room for meetings
- Community Farm
- Green Travel Hub
- Co-wheels car share scheme
- Plans for an e-bike hub
- 'Huntly Hive' – a flexible working space for sole traders and micro-businesses[2].

Through DDT, the community is driving the regeneration of its town centre, fostering start-ups and encouraging employment within the local community.

In line with these community-based principles, ACA would like to see**:**

1. **A legal right for geographical communities to create their own planning priorities and ensure that development in their local area abides by those priorities and vision, in line with the primary considerations of decarbonisation, biodiversity and long-term value.** There must be education on and encouragement by government for communities to go through this process. This means, in practice, that communities have a right to veto developments that do not fit their planning priorities.
2. **Priority given to communities to have first right of refusal to buy public land and properties** etc. within their area at a fair market or below market cost for projects in line with such a 'vision'.
3. **Community Energy:** so that every community can influence the development its own distributive energy grid and promote energy 'plants' as appropriate for that locality.
4. **Encouragement of co-working facilities within each community**, along the lines of the Huntly Hive to encourage and support the start-up new local businesses and spark ideas and partnerships.
5. **Community Hub:** In all areas of the climate cafe discussions the need arose for community hubs to teach and support community development, living sustainably and reducing waste. A community hub would be a space/ building, with land for community growing and use either attached or nearby. Each community would have

[1] http://huntlydevelopmenttrust-org.stackstaging.com/wp-content/uploads/HuSP-final-report1.pdf
[2] http://huntlydevelopmenttrust-org.stackstaging.com/wp-content/uploads/Energise-Summer-19.pdf

its own hub and the network would be supported and ran by the local Council. There would need to be at least one paid member of staff in each hub, helped by a committee and roster of volunteers. The Hub would be a place where the community could run repair and reuse/ upcycling workshops, training and educational events on living sustainably, cookery workshops, 'grow your own' practical training, run a 'library of things' , bike/ e-bike rental point, car charge point etc.

6. **Community Food Growing:** There should be priority, funding, and support given to communities to have their own communal growing schemes and land, whether that be throughout their community in an 'incredible edibles' way or a community garden etc. in line with the Community Empowerment (Scotland) Act 2015
7. **Community Composting:** Community composting schemes should be stimulated: they engage people, reduce transport costs, retain the compost locally for domestic and community use, while reducing the use of peat-based compost.
8. **Local Food Markets & Shops:** Priority should be given to the creation of local food markets and shops carrying local produce. This would stimulate the rural economy, increase small scale farming, reduce transport costs and emissions, encourage entrepreneurship and foster a sense of pride in community.

Energy Infrastructure

The UK's electricity grid was designed and built for power stations (usually coal-powered) sited near centres of population and/or supply. This yielded a concentration of electrical grid infrastructure between power stations and urban areas, while remote areas had long 'thin' infrastructure to service households and a few businesses. With the dramatic rise of renewable power sources (hydro, wind and solar) from the mid-20th into the 21st century, the requirements for the electrical grid have been switched round. Power sources are emerging across the country in urban, rural, remote islands and offshore locations, ranging from utility scale to community level and micro-generation. Furthermore, electrical storage (e.g. battery, hydrogen electrolysis) and local energy trading facilities may now need connecting to the grid. Finally, there will be additional and highly variable demands on the electrical grid from new markets, including electrical vehicles, hydrogen vehicles, rail and shipping electrification and the transition towards domestic electrical appliances (heating, cooking, air conditioning etc).

The required energy infrastructure must therefore cover broad (and some speculative) needs, for electricity, hydrogen, and interim energy sources. Decarbonisation demands a progressively more distributed energy generation, renewable energy generation, distributed storage and community and micro-grids. An integrated planning framework must anticipate new demands on the electrical grid and make provision for new technologies entering this grid.

Electricity Distribution

The critical and communal importance of the energy infrastructure makes it a prime candidate for nationalisation. The necessary complexity involved in distributing energy, dynamically juggling sources and sinks in an equitable and efficient manner, means this is best done by an independent and trustworthy organisation, which cannot be privately controlled to remove potential conflicts of interest between supply, distribution and demand. This will allow for a rapid development of low

carbon generation capacity, even before storage capacity technology allows more localised distribution, and expansion of rural business designed to exploit transient excess local supply.

Distributed generation and storage

A distributed energy system is far more efficient than a centralised system and allows for local variations while enhancing community empowerment, if each community has its own energy supply.

This is vitally important in decarbonising our heating network, as a lot of rural communities are not hooked up to gas supply at present and only have access to expensive polluting oil burners. A distributed energy system would mean small scale energy 'plants' would be built for each community in line with what for their current (and future) needs and circumstances is seen as the best system, be that wind, combined heat and power, ground source, solar etc. Such a system removes transport losses, is responsive to local needs and resources and can also help in building a vibrant and resilient community. Potential expansion to cover future transport needs (vehicle re-charge, hydrogen fills and new renewable-energy demanding businesses) should be considered.

As a minimum there should be a planning priority giving community power schemes preference over national ones. Better still, an integrated nation-wide energy generating planning exercise could be rolled out, as a subset of the energy distribution infrastructure planning exercise, and the transport planning exercise (which will include hydrogen and electricity access), with deliberative processes and community consultation at the heart of these exercises.

Hydrogen/gas supply

Local hydrogen gas supply grids may be required in remote areas of the country in support of a hydrogen transport infrastructure, which is likely to also cover island ferries. Such hydrogen must be created from renewable, as opposed to fossil fuel, energy.

Low Carbon Innovation, Research and Commercialisation

The enormous changes required to bring emissions down to zero, will require the level of change in society and industry as was last seen in World War 2: there will (and must) be many innovations, some of which will get nowhere and some which will revolutionize our lives and our carbon footprint. Scotland can make huge economic gains by heavily supporting the innovation process and enabling the roll out of new innovations globally.

The necessary high level of innovation can only happen if there is a mechanism in place that allows for quick and easy access to funding, from the conceptual stage onwards, for the key players in the process: researchers, research institutions, inventors, companies etc., acknowledging that many ventures will fail, but a few will succeed exceptionally well.

This will require, along with focussed integrated activity on all fronts, a government and/or government/industry funding scheme that aims to put Scottish talent at the forefront of a technological revolution the likes of which few have witnessed, a "Negative-Emissions-Society" Technology Development Fund.

Much of the progress towards 'net zero' can be achieved using existing technologies, applied in new contexts and often in novel ways, with the remainder requiring further technology developments and applications. However, at the moment there is no clear path visible all the way to net-zero/negative emissions. Many of the currently existing stimulus initiatives are too corporate-

focussed, limitingly-specific, or complex and unwieldy, and all are based on short term monetization which prohibits both integrated and partial (supporting) solutions.

To achieve both the necessary rapid implementation/commercialisation, as well as the medium to long term improvement and technology development, two separate innovation sectors need to be working together: an innovation/implementation section, and a research/evaluation section. These two sectors typically operate with different people in different ways, and the ability to link them together will supercharge Scotland's progress, both technologically and societally.

1: The Scottish Innovation and Implementation Centres

Innovators, smaller companies and individuals are the target players. By setting up and/or supporting "proper" regional innovation hubs with low-threshold access for innovators, and the ability to access sufficient funds rapidly, the critical step from idea to development to trial to implementation can be drastically shortened.

Developing a decarbonising idea into a decarbonising activity or business takes time, as well as connections with like-minded active thinkers and doers. There is little available collaboration space for the early-stages which are instrumental in driving the real change.

The investment to support this clean-tech start-up 'revolution' is small: collaborative office and development space, with IT infrastructure, where networks can be built and supporters and collaborators found, is often readily accessible by local councils. Multiple locations nation-wide with cross-connections is even better, allowing connection to existing national and international networks. The target is to have an Innovation Hub in each wider community.

Innovators may also be given a 'living wage' to support themselves while developing their innovation(s); this would improve the chances of many valuable innovations to see the light of day.

Government and Councils could challenge this "collective of individuals" to develop solutions to its own challenges as it has done in the past[3]. In many places high powered technology and engineering mentors are available, both active and retired (e.g. oil industry), to enhance the effectiveness of these proposals.

2: The Scottish Carbon Reduction and Sustainability Institute

The research and evaluation section of this innovation scheme will require investment in research starting as soon as practical, so that new technologies may be developed and made available and also to offer evaluation and scenario modelling "services" to the Innovation and Application Centres: for practical science-based solutions it is important to include the science.

It is proposed to create a new research institute to focus exclusively on ***Carbon Reduction and Sustainability***. This institute would draw talent and resources from across the Scottish scientific and academic community and would actively co-operate with international academic bodies. It would compete for funds alongside other academic bodies. Its choice of research topics would be a mix of short, medium and long-term promising subjects based on those deemed most likely to offer applicable benefit, e.g. from within the 'scientific talent pool' and government and industry focus areas.

[3] in collaboration with Universities, with City Lab https://citylababz.wordpress.com/

It would embody principles of decentralisation (regionalisation) and collaboration. While there would be one or more main campuses, each regional council area would have a hub. These hubs would harness local talent by allowing collaboration between local innovators, researchers, entrepreneurs and small businesses and facilitate their connection to the wider (national and international) innovation infrastructure. The Institute could coordinate low cost first stage collaborations and channel easy and rapid access pre-commercial research funds.

Importantly, it must include a mechanism by which individuals and groups largely outside the current research and development sphere can effectively contribute their talents.

Petroleum Innovation (no more)

Scotland urgently needs to develop a just transition plan with tough targets to transition away from our dependence on oil and gas extraction to an economy based on circularity. This means leaving the petroleum industry behind. Financing innovation in the Petroleum Industry sphere is counterproductive, even if it reduces emissions of the industry. Government support is required instead to fund future-resilient industries: the oil industry must fund its own turn-down.

Transport

Sustainable low-emissions travel requires infrastructure planning. Transport is one of Scotland's largest carbon emitters and needs urgent coherent action. The only proven solution is a shift towards communal and zero-emissions (bicycle + foot) transport. This must be a primary consideration, whether it is "perceived currently achievable" or not. Vastly increased uptake of communal travel is critical to reducing emissions and improving societal equity.

Freight transport may require a different approach, with most likely candidates being rail and hydrogen for long distances and electric for short ones.

Key requirements:

- Change in hierarchy of planning transport infrastructure to maximise low energy and low emissions transport.
- Major investment in and creation of green travel infrastructure
- Create a positive culture surrounding communal travel and 'green' travel
- Discourage individual and carbon-intensive travel

Cars are currently at the top of any transport planning hierarchy, encouraging car ownership and private travel. This increases carbon emissions and negatively affects the efficiency, safety and reliability of low emission travel options.

The prioritisation hierarchy must change and place low carbon transport such as bicycles, buses and trains at the top, while car use must be discouraged. Prioritising green travel is shown to initiate the necessary behavioural change, such as a shift in culture about sustainable travel, better attitude towards cyclists etc. as is evident in those cities and regions where this has occurred. Related health and cost reduction benefits are also achieved.

The current lockdown shows that people have taken to their bikes in huge numbers as fewer cars on the roads makes it safer to cycle. Many cities, regions and countries are taking this further by instituting wider pavements and bike lanes and taking cars off certain roads: they are prioritizing

sustainable travel. Studies show[4] that (only) effective leadership and planning will increase cycling numbers. This holds for any mode of transport: if effectively planned for they will flourish. Both private car use and ownership must be consistently discouraged to meet net zero GHG targets.

For freight transport separate measures are required. In road planning, road-requirements for freight should be evaluated independent of road-use for cars – the vehicle-infrastructure must be seen as primarily for public transport, emergency and freight, with decarbonisation of these vehicles the priority.

Currently the cost of communal travel is high, partly due to lack of demand and partly due to commercial business drivers. Furthermore, communal travel for commuting to work or education is insufficiently reliable and available. As long as communal travel is (perceived as) less convenient than private car ownership, ticket demand goes down and emissions up.

Additionally, linking up all transport modes to ensure effortless, quick and reliable public transport needs more consideration. Combined rail and bus tickets must be ubiquitous; options for taking a bike on a bus or train journey improved.

Walking & Cycling

- **Any new roads must be built with the new transport hierarchy in mind i.e. with automatically segregated bike paths, bus lane, pavements etc.**
- **Place cyclists and pedestrians, along with communal travel and other modes of active travel, at the top of the hierarchy of objectives when planning road infrastructure**: cycling must become a safe and convenient way to travel, particularly for shorter journeys and journeys within the city.
- **Widen pavements to at least 3 meters**
- Pre-existing roads must be modified to include segregated bike paths: **a network of cycle paths must result which connects communities, town centres and business centres** in an efficient manner. Include e-bike support.
- Busy main roads must be modified to include a separate **'bus only' lane**.
- **Safe/segregated and continuous cycle lanes**[5] are needed on key routes into city centres/ towns and from each residential and commercial area to the others to enable free and safe movement. This is the overwhelming barrier to use of the bike as a main form of transport for commuting to work/education etc.
- **All new (building) development must be planned with a 'green byway' linking it to facilities, the city/ town and the rest of the shire**, where residents/ employees can scoot, cycle and walk etc. New buildings, houses or industrial sites must include bike lockers for residents, employees and customers. including facilities for e-bikes.
- Create safe sheltered bike parking at key points with facilities to repair and maintain bikes.
- Oblige all developers to install bike lockers by new buildings; ensure flat and house owners also have access to communal or own bike lockers. E-bike support such as charging points, should also be included in this obligation.
- Provide bike ability classes to all ages.

[4] http://content.tfl.gov.uk/international-cycling-infrastructure-best-practice-study.pdf

[5] https://www.aberdeenclimateaction.org/uploads/3/8/3/3/38334597/aca_consultation_report_july_2019_a.pdf

- Change the law to include presumed or strict liability of vehicle drivers if in an accident with a pedestrian or cyclist, as is currently the case in the Netherlands[6]).

Communal Transport: Bus

- **The Hydrogen bus fleet needs to be expanded, and a hydrogen bus network established across Scotland with all regions 'encouraged' to have an electric or hydrogen fleet.** Local companies or organisations that wish to help do this should be supported, alongside continued major government/council investment.
- There must be **dedicated bus lanes on all major bus routes to city centres and between communitie**s to speed up journey times and make bus transport more reliable, quicker and more pleasant than car travel. This will encourage bus use and drive up demand.
- A **re-nationalisation of local buses and unified regional transport authorities should be instituted.** Nationalized bus services as in Edinburgh are more inclusive, cheaper, and reliable. Profit and the need for public transport are incompatible.
- Bus routes need to be revisited to include **routes between communities,** not just a radial approach to city centres.
- **Bus prices need to be reduced**. To this end the infrastructure, pricing and ownership changes outlined are necessary to make bus use cheap, easy, quick and reliable. Learn from Edinburgh.
- There must be **more streets with bus and cycle only access**. This will improve air quality, and cause a more appealing atmosphere for residents as well as **tourists and visitors**.

Communal Transport: Rail

- **High(er) speed (electrified) train links are required** between the north of the country to Edinburgh and Glasgow as a minimum, London at best, **to divert people from plane use.**
- Trains must be more reliable and cheaper – **re-nationalising** is key. As long as rail tickets cost more than car variable-costs, private car use will win out.
- The number of train stations and routes in Scotland needs to be increased; perhaps operated with the Dutch dual-speed-single-track system.
- **Trolley bus/tram type systems** should be researched for utility, in cities throughout Scotland. With Hydrogen (see bus actions) overhead cables may not be required and short distance transportation methods need to be considered in line with pedestrianisation.
- For remote regions long distance hydrogen buses could cover the gap where rail access is not (yet) made available. This ties in with distributed hydrogen generation.

Transport: Car

- E**-car charging infrastructure must be more available and** addressed holistically so that fast chargers are in suitable, regular spaced locations and electric or hydrogen car use is no longer restrictive.
- Charging facilities at home for **on street parking e-car owners are required**.
- C**ar exclusion zones instated around all schools,** and no idling by-laws (created and) enforced. There is much air pollution and congestion around many schools. Successful alternatives (e.g. walking-bus schemes) are popular and should be rolled out nationally.
- Taxi fleets must become low carbon (electric or hydrogen), by the use of licensing regulations and incentives.

[6] https://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=2176&context=ealr at p486-90

Buildings

The current state and context of "Energy in Buildings" is disappointing[7]: energy in buildings account for 37% of UK energy use (20% for domestic buildings), yet this has declined only 1.2% per year over the last 10 years. Two important issues causing this are:

- Insufficient incentive (or compulsion) to reduce energy consumption and change to renewable energy for both new and existing building stock
- Insufficient accessible practical information and knowledge to enable appropriate action towards these goals.

An urgent area for change is **Planning Process Prioritisation.**

Reducing greenhouse gas emissions over the building's lifetime, and dealing with the climate emergency, needs to be at the top of the hierarchy of factors in the planning permission decision making process. The current planning process prioritises building companies profit over the affordable and effective use of energy for the building owner/user in the long term. This new priority setting must ensure that new buildings are built to the highest energy and insulation specifications, are maximally energy self-sufficient, and that **existing stock is upgraded accordingly**.

At present there is a "presumption for development". This presumption must be changed to one **against development unless** certain 'sustainable' standards are met, which will increase in 'strength' over time to ensure that all new builds meet a 'net zero' target soonest, and definitely well before the end of the NPF4 planning period.

For existing building stock current requirements are insufficiently stringent, not progressive, and importantly there is insufficient support and guidance how to meet them.

- Regulatory Actions: **VAT on refurbishment materials for buildings** - VAT should not be payable on materials used for energy refurbishment of buildings, in the same way as it is not payable on new building construction. The 'new building' VAT exemption should be changed to one that encourages reuse and refurbishment of old housing stock, and reserved for certified 'net- or sub-zero' new builds.
- **Planning applications for all new buildings must meet EPC A ratings immediately (no delay), and have suitable renewable energy mechanisms, such as solar panels/ air pumps etc. as standard to meet at least 50-75% of average household energy needs, with this obligation to increase to 100% after e.g. 5 yrs.**
- New buildings should be under a **legal obligation to institute a 'green byway' linking that building(s) to other green byways/ segregated bike paths and pavements. Critically t**his should be the case within new housing developments, and linking them with local amenities and other districts. Both housing developments and commercial buildings must ensure that employees and visitors have a safe way to travel by bike, foot and bus/ communal low carbon transport.

[7] *in the North East alone an estimated 100,000 traditional granite houses need energy upgrading, but would fail green deal requirements for 10- to 12-year payback. Most homes have a gas central heating system, reliant on fossil fuels, with no practical alternatives. There has been little effective action to reduce energy use, switch to low carbon energy and ensure top insulation levels in new and existing building stock.*

- **No new in- or near-city shopping centres should be allowed or enlarged until all the vacant shop fronts in the city centre are repopulated**: the priority must be in rebuilding city centres. Pedestrianisation may help but other incentives also need to be considered.
- There needs to be a **separate legal obligation on any new building development/ works that they abide with stringent biodiversity and nature guidelines and actions**. These guidelines should be developed with relevant leading authorities on biodiversity and nature protection such as RSPB etc. Examples of such guidelines can be found in the Aylesbury Valley District[8].
- **The banning of gas boiler installations by the end of 2021**. There is no reason to delay this ban to 2025. Many European countries have banned the installation of new gas boilers for years now (e.g. the Netherlands). (Exceptions for guaranteed low-emissions gas supply)
- Make alternative heating options cost effective, efficient, safe and low carbon.
- Tenants should be able to demand that their landlords improve the energy rating of their property to at least the EPC C rating and be fined if they do not do so (as in Germany).
- The Green deal should be reinstated with government grants instead of loans and requirements for payback times greatly extended, e.g. to >30 years.
- The Scottish Government's consultation (March 2020), "Improving energy efficiency in owner occupied homes", is to be welcomed, with its suggested commitment to require all homes for sale to have an EPC "C" by 2024. This can be improved with a higher EPC target over time, practical information (next section), and grant aid together with legislation for hard to refurbish homes.
- All buildings must within a certain time period (10 years) have their energy rating improved to e.g. an A rating, where physically possible. This must be encouraged and incentivised by government.
- All public buildings need to have a maximum temperature level of 19oC and be able to be locally controlled to enable the switching off of heating when not required.
- Information & Advice The creation of one-stop advice centres with advisors who have real practical building expertise, to help homeowners to decide on action to reduce home energy use. 'Customers' should be able to get advice from tradesmen and experts on the optimum refurbishment for their home to reduce energy use and costs. While this is SCARF's remit, most of their staff are not experienced enough to give detailed technical advice.
- The building of demonstration house, in conjunction with the one-stop shop, would enable people to actually see and understand the options available to them. Building surveyors, architects, tradesmen and engineers, should be involved in not just the design and build of these houses and the corresponding best practise but also in the explanations given to the public by those tour guides with similar skills. This could resolve present conflicts between Scarf, tradesmen, Historic Scotland and building specialists on e.g. the use of permeable insulation materials.
- Simplify the range of government support available. Currently this is too wide, too thinly spread and constrained by restrictions (e.g. Green deal), resulting in limited usefulness.
- As part of any new development there should be a **legal requirement for a residents' association** with the authority and remit to improve the energy efficiency of the building/development as a whole and install renewable energy for the benefit of all.

Natural Environment, Farming and Biodiversity

Land use will become an ever-increasing issue with the need to increase our carbon sinks and safeguard nature and wild spaces while at the same time ensure we have a sufficient domestic food

[8] https://www.rspb.org.uk/our-work/conservation/projects/kingsbrook-housing/

supply, housing stock and land. NPF4 can play a key part in getting this right. As a country we need to resolve the thorny issue of how we use the land effectively and efficiently in line with the overriding directives of reaching 'net zero', increasing bio-diversity and ensuring a happy, healthy environment for all to live, work and play in.

Here in Scotland, and globally, we have a wealth of knowledge and expertise that can help with this. By providing expertise both in research and practical application, with test sites, in the areas of reforestation, restauration of flood management areas, soil management, low carbon agriculture, low-impact development, historical landscapes, among others. Currently this following of advice from these experts is secondary to that of meeting short term profit/economic criteria and the short-term incentives of elected influence or position-related networks. We need to harness this expertise and place those with it at the heart of our decision-making processes. There should be a database of knowledge created and utilized, with those within it creating the fundamental principles, policies and procedures that will shape the future of this country as opposed to those with vested economic interests influencing decisions made in an ad hoc fashion. .

This is a radical change from current policy, and will require a deep change in attitude in many places. However, the Corona-crisis has shown that attitude changes happen if the need (and persuasion) is great enough.

Commercial Farming

Commercial farming needs a major update to deliver future value and resilience, and making the sector more promising and appealing for future generations. Modified cultivation to reduce energy use, increase soil organic matter and soil biota, increasing carbon sequestration are but some aspects. One of the biggest changes that needs to be tackled is a shift away from large scale livestock farming to that of small-scale arable farming. To meet our net-zero target we change what we 'grow' and eat as a nation. Reducing our meat consumption is necessary both from a health and a climate change perspective. From a land-security perspective it also makes sense, given the competing land uses to reduce livestock farming to free up more local land for the feeding of humans.

Commercial farming needs a change in paradigm. Currently it is set up to supply a global market with primarily cost/price/subsidy considerations, and while supermarkets thrive farmers suffer. The priorities need to be reset to encourage a sustainable farming industry improving soil carbon and fertility, local/regional food supply, climate-resilience, minimum emissions, and maximum biodiversity. This is a highly complex matter, for which much discipline-based expertise exists, but for which sufficient integrated insights may still be scarce. Yet these insights must form a primary input to NPF4.

Solutions must cover anything from wind/solar shielding and moisture retention and release, watershed management, biodiversity corridors and insect protections, progressive restrictions on agricultural toxins/chemicals, energy usage and on-site generation, and many more. To break the supermarket stranglehold, gaining access to local markets for small scale new and existing farms is crucial. This needs to be created with government incentives and support. Small scale farming tends to be better for the health of the land, rural employment, biodiversity and animal welfare. A third of

UK farms under 50ha was lost between 2005 and 2015[9], while those larger than 100ha are on the rise. This development must be reversed, with gains being retained regionally.

Commercial Farming: Actions/Recommendations

Some recommendations are given, but primarily expertise available must focus on the essential boundary conditions and priorities discussed above:

- Encourage farmers to use sustainable / best practice methods. (e.g. What Is Next for Farming report[10]).
- Stimulate a reduction in livestock farming and reduced animal protein consumption
- Encourage start-ups of small scale farmers, with advice, grants and subsidies: small scale farmers emit less, more easily institute best practice methods.
- Arrange/support easy access to market for local food producers. This may include greengrocers and covered permanent food/produce markets.
- Incentivise farmers to switch from livestock to mixed/crop agriculture[11].
- Stimulate small local abattoirs to encourage responsible ethically managed livestock farming.
- Establish food boards to ensure sustainable food prices and push back on the 'drive to the bottom' approach of supermarkets.

The Decline of Biodiversity and Wildlife in the Countryside

Biodiversity

The decline of wildlife in the countryside threatens our future ability to grow food and survive. Recovery depends on farming policies that enable creation and restoration of biodiverse natural habitats alongside food production. In more urban areas existing green spaces must be used to provide habitat for beneficial invertebrates and pollinators: e.g. as wildlife verges, uncut grass and replacing the use of pesticides and nitrates with compost and companion planting.

Actions/Recommendations

- Incorporate a Biodiversity Action Plan into all spatial planning decisions with the aim to drastically improve biodiversity, not merely protect it from damage.
- All public land to be managed to support and encourage biodiversity: wildflower verges, unmown 'wild' sections of parks, planting of orchards and hedgerows on public land, "incredible edible" type projects in urban areas and stopping the use of pesticides.
- Support and encourage development of community gardens and allotments.
- Incentivise, stimulate and support local landowners, managers and farmers to employ biodiversity-friendly farming.
- Ban any pesticides etc. that harm beneficial invertebrates and pollinators and compost containing peat.

[9] "New Model Farming" by Campaign to Protect Rural England (CPRE) report, 2016, https://www.cpre.org.uk/resources/farming-and-food/farming/item/4347-new-model-farming

[10] https://www.wildlifetrusts.org/sites/default/files/2018-03/What%20next%20for%20farming%20-%20a%20future%20policy%20for%20land%20in%20England%2C%20investing%20in%20our%20natural%20assets.pdf

[11] See 'Eating Away at Climate Change With Negative Emissions report, Helen Harwatt and Mathew Hayek, April 2019, Animal Law & Policy Program Harvard Law School', http://animal.law.harvard.edu/wp-content/uploads/Eating-Away-at-Climate-Change-with-Negative-Emissions%E2%80%93%E2%80%93Harwatt-Hayek.pdf

National Planning Framework 4 - In conclusion

The primary essence of the new NPF4 must be a reprioritisation pertaining to all decisions relating to planning, infrastructure and development: the impact on long term and sustained reduction in carbon emissions of any project or plan, and its place in the improvement of biodiversity, climate resilience and the community must be the first consideration.

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