

Appendix 5: A comparison of the megatrends/drivers identified by the European Environment Agency report¹ and those collated from the returned questionnaires. (D) means the response is considered as a driver, (R) the response is considered as a response to a driver (or lack of driver), (O) is an outcome from a driver (or if there is no policy to deal with it).

Theme	Megatrend	Drivers	Response from questionnaire
Economic	Continued economic growth?	Population growth	Population growth (D)
		Further Market globalisation	Business development (R)
		Technological innovation	New renewable energy/agricultural technologies (R)
	From a unipolar to a multipolar world	Increase in trade (globalisation)	International Trade (D) Availability of incentives and other sources of public funding (D) Agriculture subsidies and environmental payments (D) Decisions over size of budget for Scotland Rural Development Programme and, within that, the budget share for agri-environment-climate and forestry measures (D) Input/ Output prices / price volatility (D)
		Global shift in economic power	
		Higher rates of productivity in emerging economies	Increasing wealth in developing countries fuelling demand for consumer goods/higher protein diets, leading to increasing demands for provisioning (D)
		Also, population growth, continuing technological innovation and diffusion of technologies, favourable economic policies and integration at regional and global level	Corporate social responsibility as a source of private funding (O) Food security and the need for sustainable intensification of agriculture (D) Affordable healthy food (O) Sustainable diet (O) Insurance industry response to increased flood risk (R) Urban Regeneration of at 'risk' areas (R)
	Intensified global competition for resources	Continuing economic growth	Financial crisis (D) Economic recession (D) Sustainable economic growth (O) Business development (D) Corporatism (D) Regulation (D) Fiscal tools (D/R) Benefits of nature are undervalued (O) Economic unviability of high nature value farming systems in North West (D/O)
		Technological innovation	New renewable energy/agricultural techniques
		Depleting resources (see below)	Commodity prices (D)

¹ EEA, 2011 The European Environment – state and outlook 2010: assessment of global megatrends. EEA

			<p>Increasing wealth in developing countries fuelling demand for consumer goods/higher protein diets, leading to increasing demands for provisioning (D)</p> <p>Increasing divide between rich and poor (O)</p> <p>A carbon price (D)</p> <p>Ecosystem service values (D)</p> <p>TEEB/ecosystem valuation (R/O)</p> <p>Timber prices (D)</p> <p>Land based business contributing to nature (R)</p> <p>Cost of cleaning up vacant and derelict sites shifting development to more marginal areas in terms of flood risk (i.e. floodplain sites) (D/R)</p> <p>Full cost of agricultural land used for flood risk management (D)</p> <p>Increasing cost of flood management schemes (D)</p> <p>To allocate most cost effective use of resources to achieve improvements under WFD (R)</p> <p>To link sustainable management of water resources to a flourishing economy (R)</p>
		<p>From Questionnaire but don't map neatly</p>	<p>Current economic slump leading to biodiversity conservation being seen as a "luxury item" (D/R)</p> <p>CAP reform (D)</p> <p>Subsidies (D)</p> <p>Availability of incentives and other sources of public funding (D)</p> <p>Agriculture subsidies and environmental payments (D)</p> <p>Decisions over size of budget for Scotland Rural Development Programme and, within that, the budget share for agri-environment-climate and forestry measures (D)</p> <p>Consumer Trends (O?)</p>

Theme	Megatrend	Drivers	Questionnaire response
Social	Increasing global divergence in population trends	Continued population growth, but slower & with regional differences. Fertility, mortality, migration, economic development, poverty and governance are the main drivers of population growth	Population growth (D) Population increase (D) Changes in population density (D) Increasing urban expansion (D) Rural population
		Ageing societies	Ageing societies (D) Ageing farmers (D)
		Migration	Migration x4
	Living in an urban world	Increasing productivity (& consumption)	Expanding per capita demand for resources (D)
		Greater access to goods, health etc	Increased ill health due to obesity (O) Declining mental health (O) Health reform (D) Identification of healthy foods and diets (O)
		Migration for economic opportunity	Migration and increasing movements of workforce (D)
	Disease burdens and the risk of new pandemics	Climate change	Changing attitudes – CC projections suggest more flooding in future – people need to take responsibility to protect their homes and not increase flood risk (R).
		Increasing mobility increases risk to exposure to new emerging and re-emerging diseases, to accidents and new pandemics	
		From Questionnaire but don't map neatly	Expanding per capita demand for resources (D) Increasing food demands from global population growth and changing diets (D) Move to single person households (increased requirement for developable land) (D) Desire for nature conservation as “a good thing” (R) Public disconnection with nature (R)? Public disconnection with the countryside (R)? Communities influencing land use decisions (D) Land use ownership patterns (D) Volunteer capacity (?) Declining confidence in the use of science (?)
			Declining incomes from family farms (O) Decline in traditional farming systems (R) Sustainable social attitudes (O) Sustainable behaviours (O) Increasing insurance take up (R) Willingness of farmers to participate in agri-environment schemes (R) Social impacts of flooding – tangible and intangible (O)

			Better amenity value of water (O) Clean, safe water environment for people (D, O) Culture (R)
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Theme	Megatrend	Drivers	Questionnaire response
Technological	Accelerating technological change: racing into the unknown	Nanotechnology and Biotechnology	Nanotechnology and biotechnology x2 (D)
		Information & communication technology	Social media and information technologies (D) IT (D)
		From Questionnaire but don't map neatly	Enhanced technologies that enable increasing exploitation of the natural environment, e.g. agricultural mechanisation Farming technology (e.g. machinery) (D) Agricultural technological improvement (D) Precision farming – contributes to improved resource efficiency in farming and reduced diffuse pollution (R) Intensifying agriculture in a sustainable way (R) Agricultural practise (R) GM crops (D) Mechanism in developing countries (O) Food processing (O) New renewable energy technologies x2 (R) New fossil fuel technologies (R) Energy use efficiency (D) resource reduction, reuse and recycling (D) Scientific technology use for research and monitoring (R) Improved monitoring and assessment tools (R) Better modelling of flooding scenarios (O) BAT, using appropriate and innovative technology to achieve the standards set out under WFD (R) Green infrastructure/SuDS development (e.g. green roofs, walls etc) (R) More efficient use of water (R) New (temporary/removable) protection products – especially for individual properties (R)

Theme	Megatrend	Drivers	Response from questionnaire
Environmental	Decreasing stocks of natural resources	Expansion of agricultural land (and energy/water) to meet needs of growing affluent society	Food security (D) Increasing demands on land Agricultural intensification (D) Expansion of Agricultural land to meet food demands (D) Changes in agricultural practise (R) Habitat fragmentation/loss x3 (D) Expansion of built environment – urban creep/loss of green space (D) Increasing environmental quality from EC Directives especially water (D) Reversing the decline in biodiversity (D) Biodiversity loss/protection x4 (D) sustaining resources (R) Decisions over competing land uses e.g. forestry, agriculture, protected areas (D/R) Adoption of an ecosystems approach to land use (D/R)
	Increasingly severe consequences of climate change	Greenhouse gas (GHG) emissions from fossil fuel use for energy (from global population growth, increases in demand for food, water)	Scotland's obligations and targets to halt the loss of biodiversity, improve water quality and reduce GHG emissions (D) Climate change: direct impacts x5 (D) Climate change (increased floods or droughts) (D) Climate change and its local impacts (D) GHG increases in the atmosphere (O) GHG emissions reduction (D) Renewable energy (R/D) Climate change: adaptation needs (R) Local environmental quality impacts from new industry (e.g. renewables, fracking) and historical decline (O) Impact of climate change on biodiversity, ecosystem services and agriculture (D)
		Deforestation (as above)	Indicative Forestry Strategy (D) Woodland creation (D)
		Unsustainable agricultural practice	Agricultural intensification (R/D)
	Increasing pollution load	Climate change and land use changes may influence the emissions from natural sources.	WFD (D) Diffuse pollution mitigation (D/R) Diffuse pollutants (O) Diffuse water pollution (O) pollution control (D) Maintaining ecosystem function (D/R)

		Increased demand for energy, transport, food and non-food crops may further increase emissions arising from human activity and changes in consumption and production patterns are likely to affect the distribution of pollutants	Pressures on soil quality from agricultural practices, increasing built development & climate change (D)
		Economic and population growth cause increasing emissions of reactive nitrogen, ozone precursors and chemical waste.	Intervention through EC Directives (WFD) (D)
		From Questionnaire but don't map neatly	<p>Increasing pests and diseases including invasive non-natives (D)</p> <p>Rural land use policy and impacts on catchment hydrological regime (e.g. increased flood flows in urban areas lower down catchment) (D)</p> <p>Loss of agricultural land for flood risk management – water storage (D/R)</p> <p>Landscape (?)</p> <p>Invasive and non-native species (INNS) (D/O)</p> <p>To improve to required standard under WFD water quality (D)</p> <p>Intervention through EC Directives (WFD) (D)</p>

Theme	Megatrend	Drivers	Response from questionnaire
Political	Environmental regulation and governance: increasing fragmentation and convergence	Economic globalisation and rapid economic growth in emerging economies	Trade Barriers (D)
		Climate change	Climate negotiations
		Changing resource scarcity patterns	UN Conventions (D) EU policy / directives (D) Support for agriculture (D) CAP(D) Common Fisheries Policy (D)
		Trade barriers and different standards	Support for economy (D) Trade practise(D)
		From Questionnaire but don't map neatly	<p>Lack of political will to prioritise environmental conservation over the immediate supply of resources to the electorate: effectively political short-termism (D). Time horizons for decision making in democratic societies – working against decisions for the long term (R). Political (with small 'p') pressure to push through development that doesn't adequately incorporate sustainable design criteria (i.e. in favour of economic development/job creation) (D)</p> <p>Drive towards more local decision-making – responsibility and accountability (D) Community ownership of public land and assets (D) Devolution to local level (D)</p> <p>Integrated land policy (D)</p> <p>Methods and processes of government (R) Legislative methods and processes (R) Judicial methods and processes (R) Civic processes (R)</p> <p>Scottish independence (D) Stakeholders (?) Press (?) Ideology (D)</p>