



Future Innovation Necessities in Societal Practices

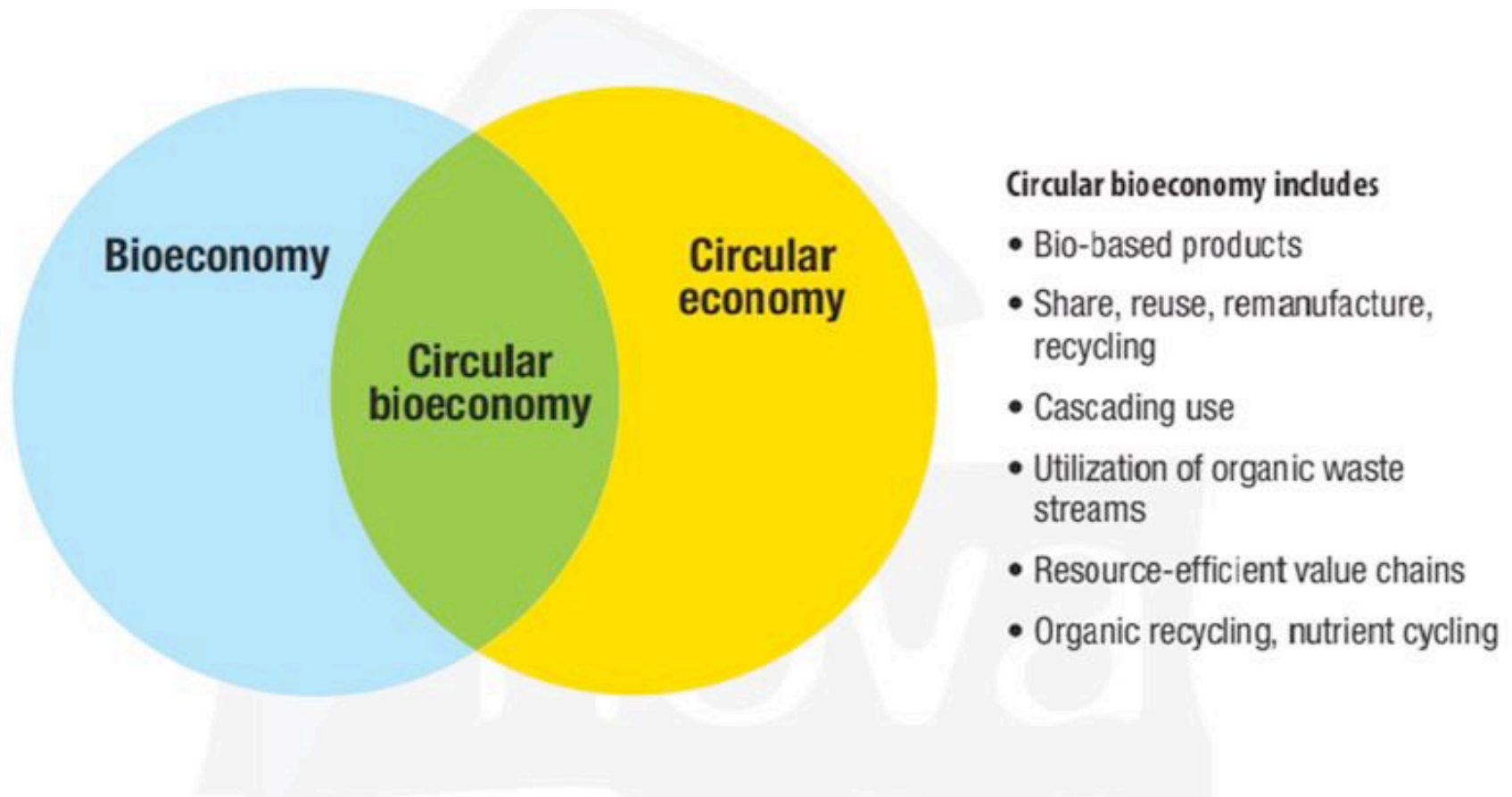
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Bioeconomy and circular economy



Key Characteristics of Bioeconomy Visions (after Bugge et al. 2016)

	Bio-Technology Vision	Bio-Resource Vision	Eco-Economy Vision
Aims & objectives	Economic growth & job creation	Economic growth & sustainability	Sustainability, biodiversity, conservation of ecosystems
Value creation	Application of biotechnology commercialization of research & technology	Conversion and upgrading of bio-resources (process oriented)	Development of integrated production Systems; high-quality products with territorial identity
Drivers & mediators of innovation	R & D, patents, Research councils and funders (Science push, linear model)	optimize of land use, include degraded land in the production of biofuels, availability and use of bio-resources, waste management, engineering, science & market	Identification of favorable agro-ecological practices, ethics, risk, re-use & recycling of waste, land use,
Spatial focus	Global clusters/ Central regions	Central & peripheral & regions	Rural/Peripheral regions

Governance and Policy of Agro-food Systems (own compilation)

Bio-economy vision	Main material Resource	Principle of ordering	Macro actor	policy tools	Parameter of sustainability
Bio-technology / resource	Renewable raw materials (Cellulose, algae, insects etc.) industrial conversion into food and non food products	Additive growth (scale unit) Cluster & technology networks	Market neo-liberal economy for international markets Biotechnology (GMO, genetic engineering etc.) Bio-resources for industrial technology	Support for technological innovation Support for cluster formation , public research etc. Ethical, biosafety and hygiene regulations	Economic efficiency within environmental boundaries (Climate, energy carbon sequestration cascadic use of biomass)
Eco-Economy	Local renewable resources artisanal conversion (food and non-food)	Multi-plicative growth (network) Participation, Multi-stakeholder networks	Civil society (local Gov. for local use)	Local governance (decentralized, e.g. food policy councils) support for social innovation	Social and environmental boundaries for economic activities economic relations of proximity plus minimizing negative global effects

Role of Farming and Development Trajectories (own compilation)

Bio-economy vision	Farm strategy	Farming and land use	Provision of public goods
Bio-technology/resource	<p>Technologically enforced growth get big or get out agribusiness</p> <p>Integration into industrial complex long term contracts, security, raw material production for industry</p>	<p>Provision of raw material (food and increasingly non-food) for industrial conversion high competition with forestry and energy use</p>	<p>Climate related (e.g. carbon sequestration)</p> <p>Resource related (biodiversity as a base for technological innovation)</p> <p>“Economize ecology to ecologize economy”</p>
Eco-Economy	<p>Self-sufficiency (Autonomy, peasant)</p> <p>artisanal production (entrepreneurial) multifunctional,</p>	<p>Provision of local food for local consumption</p> <p>Local processing and marketing of food and non food products</p>	<p>Locally defined and compensated cultural heritage</p> <p>vital rural spaces open landscapes</p>

Spatial Effects (own compilation)

Bio-economy vision	producer - consumer relations	Urban-rural relations	Local-global relations	rural development	Spatial effects
Bio-technology/ resource	Distant Focus on intermediaries (industry, commerce)	logistical and techno-logical connections of efficiency	Global markets, global technologies, Local resources	Core - periphery Resource base framed new clusters in rural areas, new centers,	Productive rural spaces are used intensively for production biotechnology parks for conversion, others get reforested for cellulose and as carbon sink etc.
Eco-Economy	Close social/ physical proximity etc.	New alliances civic food networks	Local production/ consumption global responsibility (fair trade etc.)	Integrated territorial development (Neo-) endogenous	Decentralized rural-urban networks, mixed urban agglomerations Distant rural areas are reforested as nature parks

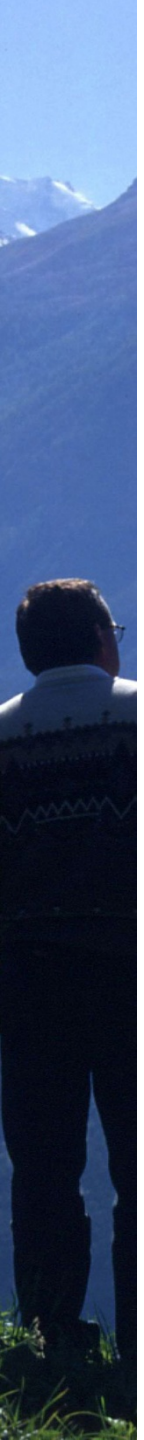
Change of Social Practices

From

Standard of Living

to

Quality of Life



Competitive or Complementary Visions?

Possible combination:

- Bio- resource/bio-technology visions in agricultural favorable central regions
- Eco-economy visions in peri-urban and peripheral regions

Further info and examples of eco-economy:

<http://www.ecoregion.info/>

Thank you for your attention

