

# The ambitious concept of Circular Economy and the influences on Strategic Planning Development

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## ABSTRACT

The 2008 Waste Framework Directive sets the overarching legislative framework. It defines the main concepts linked to waste management, including the “polluter pays principle” (ensuring that the costs of preventing, controlling and cleaning up pollution are reflected in the cost of goods), the “waste hierarchy” (a priority order set among waste prevention and management options and the “end-of-waste criteria” (i.e. when waste ceases to be waste after recovery). The Directive sets binding targets to be achieved by 2020: preparing for reuse and recycling of 50% of certain waste materials from households and similar sources, and preparing for reuse, recycling and other recovery of 70% of construction and demolition waste. It also requires Member States to set up separate collection of at least paper, metal, plastic and glass waste by 2015 where “technically, environmentally and economically practicable”, and to draw up waste management plans and waste prevention programmes (EU Legislation in progress, 2016).

Moreover, an ambitious target requests important effort from several points of view including political parties, NGOs, Universities, Local Authorities (LA), public participation from several target groups etc. EU has developed and promotes an ambitious new Circular Economy Package (CEP) to help European businesses and consumers to make the transition to a stronger and more circular economy where resources are used in a more sustainable way (Ghisellini, et al., 2016).

Furthermore, sustainable development (SD) involves balanced and simultaneous consideration of the economic, environmental, technological and social aspects of an investigated economy, sector, or individual industrial process as well as of the interaction among all these aspects (FAO, 2002; Ren et al., 2013). CEP contributes positively to reconcile all the elements, thanks to its underlying rationale, mainly rooted in environmental and political (Birat, 2015) as well as economic and business aspects (Ellen MacArthur Foundation, 2012). CEP encourages a more suitable and environmentally sound use of resources aimed at the implementation of a greener economy, characterized by a new business model and innovative employment opportunities (Ellen MacArthur Foundation, 2012; Zorpas and Lazaridi, 2013; Stahel, 2014), as well as by improved wellbeing and evident impacts on equity within and among generations in terms of both resource use and access: “*A world in which poverty is endemic will always be prone to ecological and other catastrophes*” (World Commission on Environment and Development, 1987).

CEP has the prospective to recognize and implement fundamentally new patterns and help society reach increased sustainability and wellbeing at low or no material, environmental costs and energy (Ghisellini et al., 2016). According to the CEP (Circular Economy Strategy, 2015) the targets set up to 65% for recycling of municipal waste by 2030; 75% for recycling of packaging waste by 2030; a binding landfill target to reduce landfill to maximum of 10% of municipal waste by 2030; a ban on landfilling of separately collected waste; concrete measures to promote re-use and stimulate industrial symbiosis - turning one industry's by-product into another industry's raw material etc.

One of the main research questions nowadays is “can small Municipalities in insular communities adapt to the concept of circular economy”? Furthermore, small municipalities which their activities, mainly, focus on hospitality industry and agriculture without any specific strategy plan in place regarding waste management for more than 30 years, how will be in a position to adopt and adapt the concept of circular economy the next 5 to 15 years. Furthermore CEP has most often been considered only as an approach to more appropriate waste

management. Such very limited point of view may lead CEP to fail, in that some recycling, reuse or recovery options may either be not appropriate in a given context while instead fitting other situations and, more than that, some conversion options based on green chemistry and biotechnology may end up being much more expensive and impacting than the conventional technology addressed, which calls for prevention more than treatment. It's expected that CEP will mainly affect the Strategic Planning focuses on waste prevention, disposal and management. On the other hand, would be a mistake to assume that strategic management neglects the internal environment completely, because factors inherent in this environment are also very important for sound management decisions. Strategic management is understood as the art and science of formulating, implementing and evaluates transversal decisions that allow organizations to achieve their objectives, targets and goals. Strategic management consists of formulating the vision, mission and goals of the organization, analysis of external and internal environment of the organization, selection of an appropriate strategy at local, regional or national level, depending on the level of government entities, organizational design changes, administrative measures and control systems for implementing strategy. The development of strategic management is not random, but it occurs as a result of previous development and adaptation of management entities of local self-governments to conditions for development of the country.

Several LA from the Island of Cyprus they have developed a Waste Strategic Planning having in mind framework of CEP the last 5 years. Although CEP is often identified with the recycling principle, it must be underlined that this may be the least sustainable solution compared to the other CE's principles and this were identified using SWOT analysis to evaluate the existing barriers from LA as other principles like prevention and reused of materials are not really taken into consideration. Furthermore it was indicated that typical stereotypes do not let the new CEP to be easily adopted from LA as Local Political Parties (as one of the main Threats) play significant roles for any decisions needs to be taken. Moreover it was found that daylily routines cannot be changed, attitudes and behaviours without any motivations is not easy to change as well as educational in all levels is really missing (although Ministry of Education has clear target to build environmental behaviour).

**Keywords:** air transport, airlines waste production, strategic planning, circular economy

## REFERENCE

- Birat, J.-P. (2015). Life cycle assessment, resource efficiency and recycling. *Metall. Res. Technol.* 112 (206), 1-24.
- Circular Economy Strategy, (2015). Implementation of Circular Economy Plan. [http://ec.europa.eu/environment/circular-economy/index\\_en.htm](http://ec.europa.eu/environment/circular-economy/index_en.htm)
- Chisellini, P., Cialani, C., Ulgiati, S. (2016). A review on circular economy: the expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production*, 114: 11-32.
- EU Legislation in Progress (2016) Circular economy package: Four legislative proposals on waste, European Parliament
- Ellen Macarthur Foundation, (2012). Towards the Circular Economy. Available: <http://www.ellenmacarthurfoundation.org/business/reports>
- FAO, Food and Agriculture Organization, (2002). Guidelines for the Integration of Sustainable Agriculture and Rural Development. The concept of SARD, available: <http://www.fao.org/docrep/w7541e/w7541e04.htm>
- Ren, J., Manzardo, A., Toniolo, S., Scipioni, A. (2013). Sustainability of hydrogen supply chain. Part I: identification of critical criteria and cause-effect analysis for enhancing the sustainability using DEMATEL. *Int. J. Hydrog. Energy* 38, 14159-14171.
- Stahel, W.R. (2014). Reuse Is the Key to the Circular Economy. Available: [http://ec.europa.eu/environment/ecoap/about-eco-innovation/experts-interviews/reuse-is-the-key-to-the-circular-economy\\_en.htm](http://ec.europa.eu/environment/ecoap/about-eco-innovation/experts-interviews/reuse-is-the-key-to-the-circular-economy_en.htm)
- World Commission on Environment and Development, (1987). Our Common Future Available: <http://www.un-documents.net/ocf-ov.htm>
- Zorpas, A.A., Lasaridi, K. (2013). Measuring Waste Prevention. *Waste Management*, 33:1047-1056.