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Mulit Criteria - Application on Climate Change Adaptation and Biofuel Cultivation on Contaminated Land

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A decision support tool/method has been developed to systematically include sustainability at an early stage in planning issues. Sustainability was subdivided into human health, environmental impacts, resources, and social and economic impacts. Health, environmental and resources impacts were based on the Swedish environmental objectives, life cycle assessment (LCA) impact categories, and contaminated soil guidelines. The resulting impact indicators were climate change – global warming potential, large scale and local air quality, water and soil quality, landscape, energy, materials, wellbeing/welfare, direct financial costs, social economic aspects, and flexi-bility.

The method offers an iterative discussion framework that is systematic, condensed and yet a simplistic way of describing consequences of climate change and related adaptation measures including economic, social and environmental aspects.

Application of the tool to biofuel cultivation on contaminated soil indicated that traditional soil remediation may have higher social and economical benefits but be less suitable from a health, environment, and resources perspective. The tool has further been applied in municipalities on climate change impacts and adaptation measures. Re-sults from the application in tree municipalities will be presented: Gothenburg City, Lidköping and Arvika.

In Gothenburg and Lidköping the major impact of climate change is increase in sea water level (North Sea and Lake Vänern respectively) combined with extreme weather conditions. According to regional climate change scenarios Arvika is located in one of the worst affected areas in Sweden with respect to increase of intensive rainfall and extreme flows. The adaptation measures investigated at the three locations include doing nothing, different constructions and planning. The results are based on previous risk identification investigations, flood and land slide maps and interviews with civil servants in the three municipalities.