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EVOLUTIONARY MODEL OF SUSTAINABLE CHEMISTRY

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According to the definition of sustainable development of the World Commission on Environment and Development, we should meet the needs of the present without compromising the ability of future generations to meet their own needs. The definition is ambiguous and provides very little accountability, as our prediction capabilities have had difficulties correctly forecasting scientific discoveries and technological developments, while our track record is even worse for predicting economic changes or societal transformations. Large amount of money was spent across the globe on projects, which have never addressed the real needs of future generations. More importantly, sustainability should be independent of economic and social aspects, as stake holders could have vested or even conflict

of interests in unsustainable developments. An alternative definition of sustainability was recently proposed, which was limited to resource replacement and waste remediation and disconnected from economic and societal issues. Resources, including energy, should be used at a rate at which they can be replaced naturally, and the generation of wastes cannot be faster than their remediation. It was used to evaluate the sustainability of basic chemicals and technologies. A new evolutionary model of sustainable chemistry will be also discussed, which provides a system for the combination of the intrinsic resource and waste management issues with economic and societal factors.

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