Decision support tool to decide the way we commute in future

Public transport systems are regarded as efficient and environmental friendly as compared to personal transport. Nevertheless, the perceived advantage of public transport should not be taken for granted as it is sensitive to several factors viz. type of fuel and electricity used for running vehicles, material intensity of supporting transport infrastructure, service life of vehicles and infrastructure, etc. Therefore, our lab in collaboration with Dr. Rajesh Kumar Singh from thinkstep sustainability solutions Pvt Ltd. has been conducting the life cycle analysis (LCA) of urban commuting modes in Mumbai city. LCA is a quantitative and detailed approach to provide comprehensive and quantifiable understanding of environmental burden associated with construction of transport infrastructure, manufacturing and operation of vehicles, in addition to maintenance requirements.

We have developed a decision support tool (DST) for assessing the life cycle environmental impact of urban commuting modes in Mumbai city. The system boundary of this study includes the Mumbai Suburban Railway, Mumbai Metro, Mumbai Monorail, BEST Bus Transport, Auto-rickshaws and Taxi. GaBi software has been used to identify environmental impact in terms of global warming, ozone depletion, acidification, eutrophication and photochemical ozone creation potential. The results are intended to enable municipal corporations and regional transport planners to identify the possible improvements to the system design to minimise the environmental impact of existing modes. They can draw any route of any mode and click the DST to provide inventory of all environmental impacts in all phases; thus helping them decide the preferred urban commuting routes / modes in future.

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