

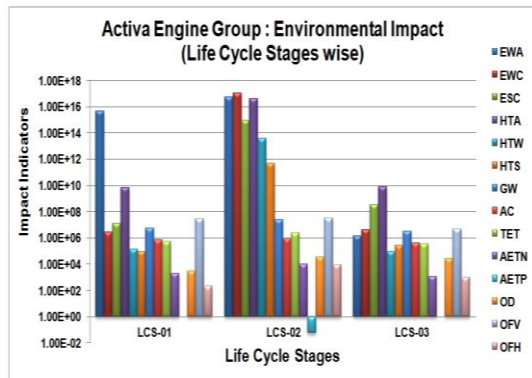








material manufacturing (LCS-02) and part manufacturing (LCS-03) is presented graphically as shown in the figure 6.



**Figure 6:** Environmental Impact of Engine Group -Life Cycle Stagewise

The impact is prominent at stage LCS-02 for all impact categories. The next dominating stage is LCS-03 for all impact categories except EWA, which is higher at stage LCS-01 as compared to LCS-03.

## 5. Conclusions

The major portion of 'Engine Group' of 'Activa' having aluminium parts and then next is steel parts. During the manufacturing (i.e. life cycle stages from 'cradle to gate') of parts of various subassemblies of 'Engine Group', the impact categories-wise, ecotoxicity water chronic (EWC), ecotoxicity water acute (EWA) and human toxicity air (HTA) are affected more. The impact of steel parts is dominating. Subassembly-wise, the impact of Crank Shaft Piston (CSP) and Cam Shaft Valve (CSV) is prominent amongst all other subassemblies of 'Engine Group' for steel parts. Looking to the results, there is a major scope of improving the environmental impact arises during the manufacturing life of product 'Engine Group' of 'Activa' at the design stage.

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