System Dynamics Society

Online Poster Presentation

Dust and Ash Plant Maintenance

Operation and Maintenance System Dynamics Insights*

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*This work formed part of the unpublished Ph.D. Thesis of SD Koloane.

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Problem Statement

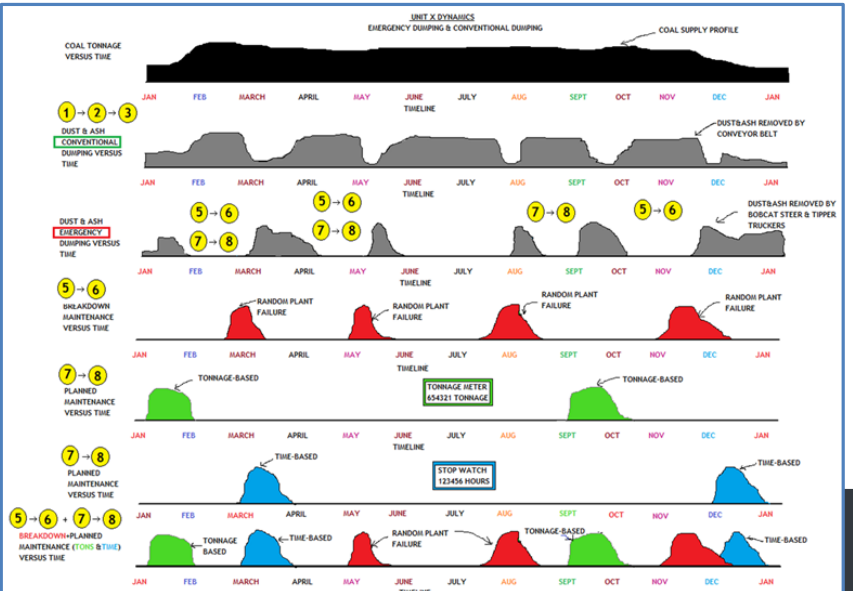
Coal-fired power plants' dust and ash system has a low availability and this has negative effect power plant availability.

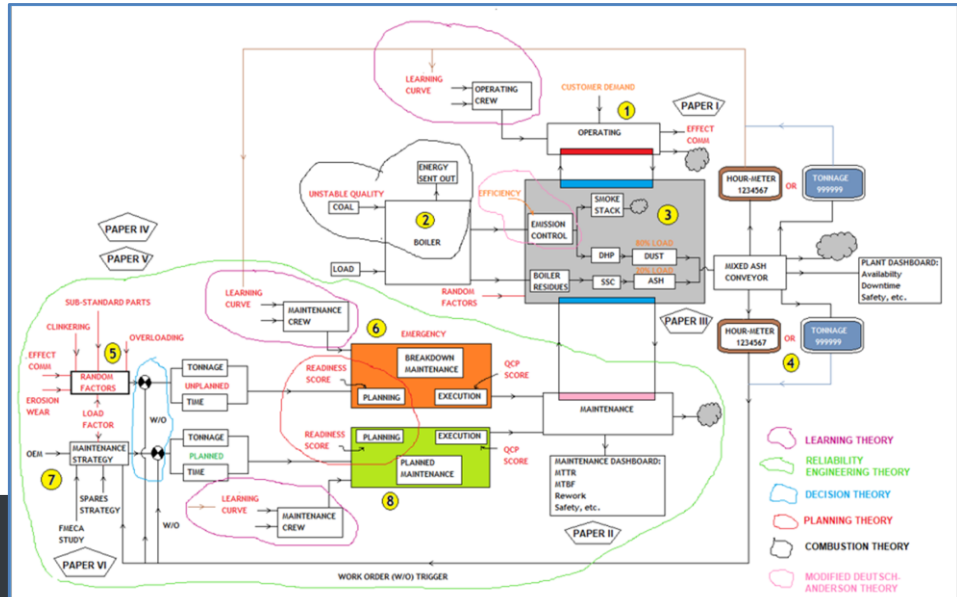
Approach or Dynamic Hypothesis

Application of system dynamics to identify the gaps that exist in the Dust and Ash plant – make use of the identified levers to enhance plant availability. Research instruments used to get data: *Interviews of the workers, survey the opinion of the workers, plant observations, literature reviews and plant documentation reviews*.

*BEHAVIOUR!

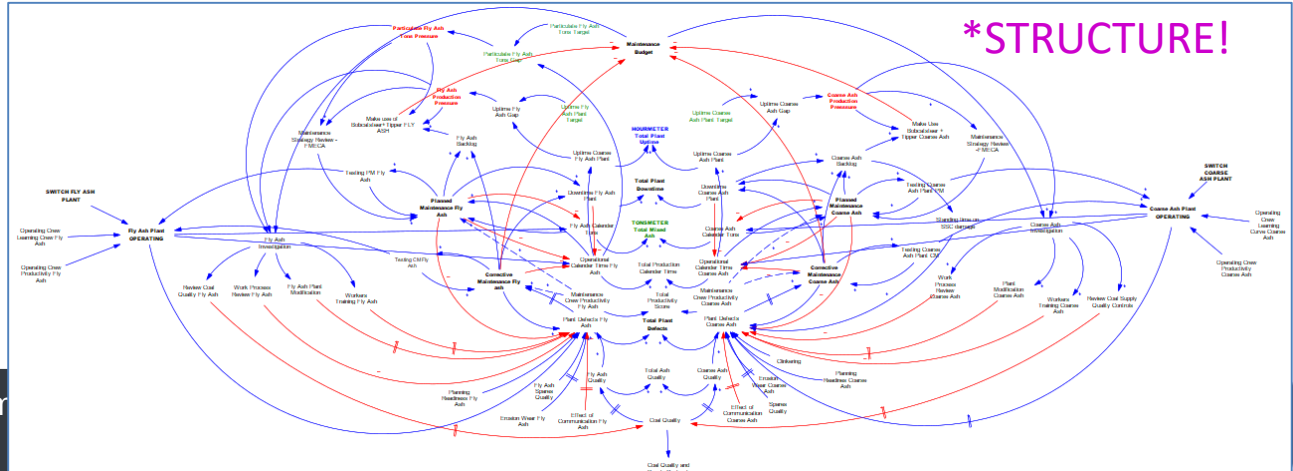
*STRUCTURE!





Results

- Causal Loop Diagram
  - Maintenance dynamics – planned, unplanned, emergency, unreliability of plant, budget, quality control, planning, communication, spares quality, maintenance team learning curve, plant defects, etc.
  - Operating dynamics – plant age, erosion wear, operating behaviour, operator learning curve, dust and ash quality, etc.



Conclusions

- Implications
  - Dust and ash plant availability is driven by a number of factors
  - Make of use of the research instruments to identify critical factors to be modelled: Interviews, surveys, literature reviews, observations, etc.
- Recommendations
  - Develop stock and flow diagram
  - Identify the policy (s) that will enhance plant availability through simulations
- Questions