

Workshop for Beginners - 21 Feb 2024, Wednesday.

Modeling Non-Renewable Resources Dynamics (Dr. Bellam Sreenivasulu)

Pre-workshop tasks for practice and simple hands-on exercise

Part-1

Learning outcomes:

- To learn how to draw **causal loop diagrams** (CLDs) as qualitative models in Vensim PLE by **exploring drawing tools and options**.
- To learn to **draw causal links correctly with the correct link polarities** (+ve or -ve signs) on near curved arrow heads.
- To learn to correctly **identify the feedback loops and assign correct symbol** ('R' for reinforcing or 'B' for balancing) and indicate it correctly inside the respective loop(s).
- To learn to save the CLD as a Vensim model file for submission.
- Building a simple **stock and flow diagram** (SFD) or model, simulating and saving the files.

Learning Task 1

Watch a video from the **start and up to 10:00 min** to learn about 'drawing causal loop diagrams (CLDs) in Vensim'. This video is available from the following link:

https://vensim.com/vensim-video-library/#Vensim_Causal_Loop_Diagramming

Learning Task 2

Having watched this video for learning how to draw CLDs (or repeat watching it until you get comfortable to draw it by yourself), construct the same example of CLD as demonstrated in the video. Save your replicated CLD file as <your name.mdl> format.

Learning Task-3

Watching a Video about 'building a simple Stock and Flow Model' in Vensim. This video is available from the link to learn how to draw a stock and flow diagram (SFD).

<https://vensim.com/building-a-simple-vensim-model/>

Watch it slowly and repeatedly for better understanding and practice.

These videos are intended to enable you to get familiar with- Vensim tools, workspace, sketching CLDs, stock and flow diagrams, analysis tools, defining and setting equations, running/simulating the model, generating output graphs, etc. **This helps to have an effective hands-on session during the Webinar on 21st February 2024.**

Note: Vensim PLE 10.1.3 version is free and can be downloaded and installed from **(follow instructions carefully):**

<https://vensim.com/free-downloads/#PLE>

Important Note: Older version of diagramming as seen in above Videos can be obtained by choosing Switch back to old sketch option under 'Tools' menu on Vensim PLE 10.1.3.

Part-2

Exercise for self-practice for drawing a CLD on Vensim PLE program (based on the learning achieved from the above pre-workshop tasks).

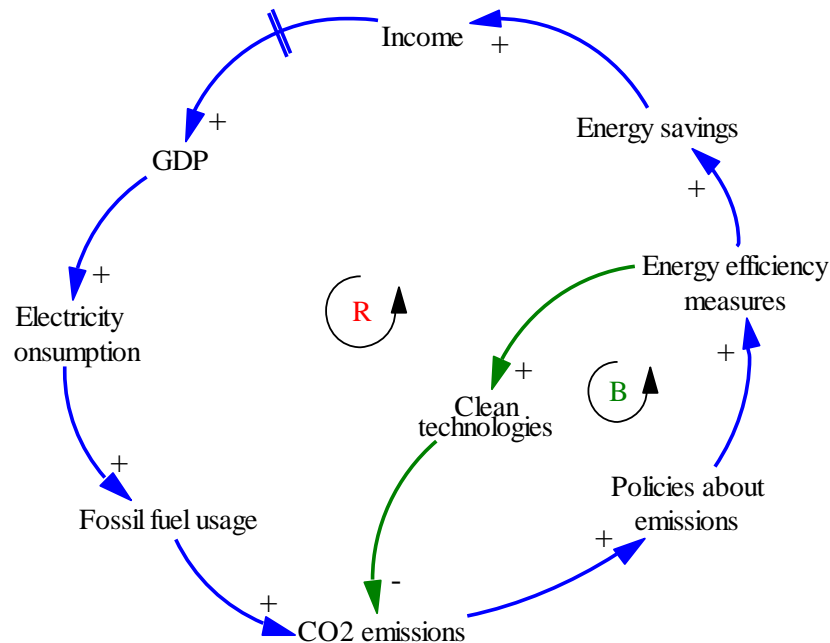
Learning outcomes:

- To learn how to draw causal loop diagrams (CLDs) in Vensim PLE by exploring drawing tools and options.
- To learn to draw causal links correctly with the correct link polarities (+ve or -ve signs) on near curved arrow heads.
- To learn to correctly identify the feedback loops and assign correct symbol ('R' for reinforcing or 'B' for balancing) and indicate it correctly inside the respective loop(s).
- To learn to use colour code options for the curly arrows or causal links.
- To learn to save the CLD as a Vensim model file.

Task/Exercise: Expected to be finished in 30 min.

Below given is a simple model of an energy system in the form of a CLD. Construct this model in Vensim workspace using the sketching tools and options you would have learnt after completing the learning tasks mentioned above.

After constructing the CLD given below, apply different colour codes shown or you can also use your choice of colour for the causal links (arrows), link polarities as shown and the respective symbol (R for reinforcing or B for balancing along with direction based how each loop runs- clockwise or counter-clockwise) for indicating the 'feedback' inside the loops' (in the example below, both loops are running counter clock-wise).



Looking forward to seeing you all in the Webinar.

Dr. Bellam Sreenivasulu (Sreenivas)