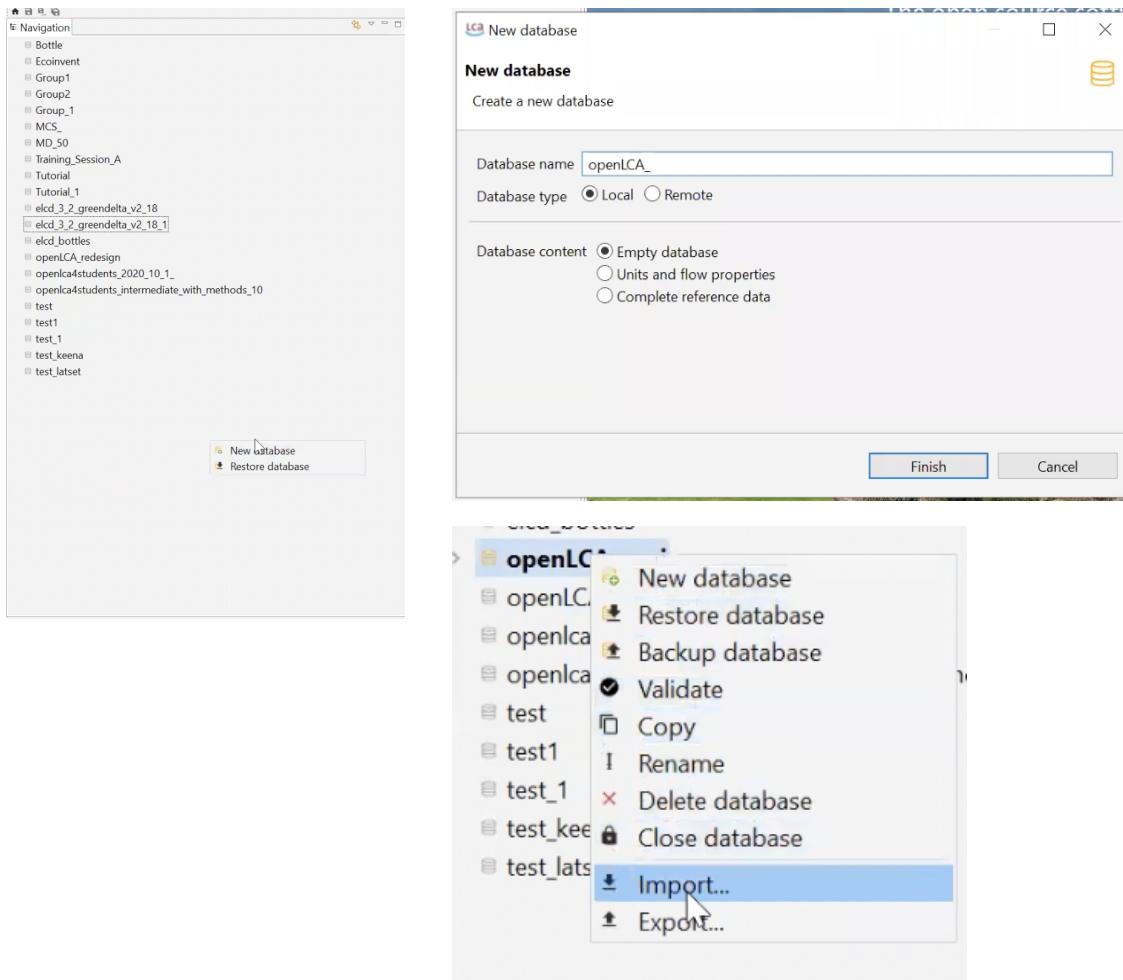


## Importing a DB is inefficient

Mutahar imports a database as follows

- Right click nav pane db create -> create empty db -> import db u want into this empty db



For some dbs, for example for linked dataset you need to create a folder and then right click on the folder and go through the wizard to find the folder) (3:36)

Highly specific rituals for importing that must be learned through trial and error

Additionally, he clicks on a lot of config options while he navigates through the menu, none of which offer any guidance on how to decide which config option the user needs

(Mutahar: people select some import method that is not compatible with the file they have) (3:10)

Additionally, it appears the db files first have to be imported into openLCA and only then imported as db

## Importing a db takes very long

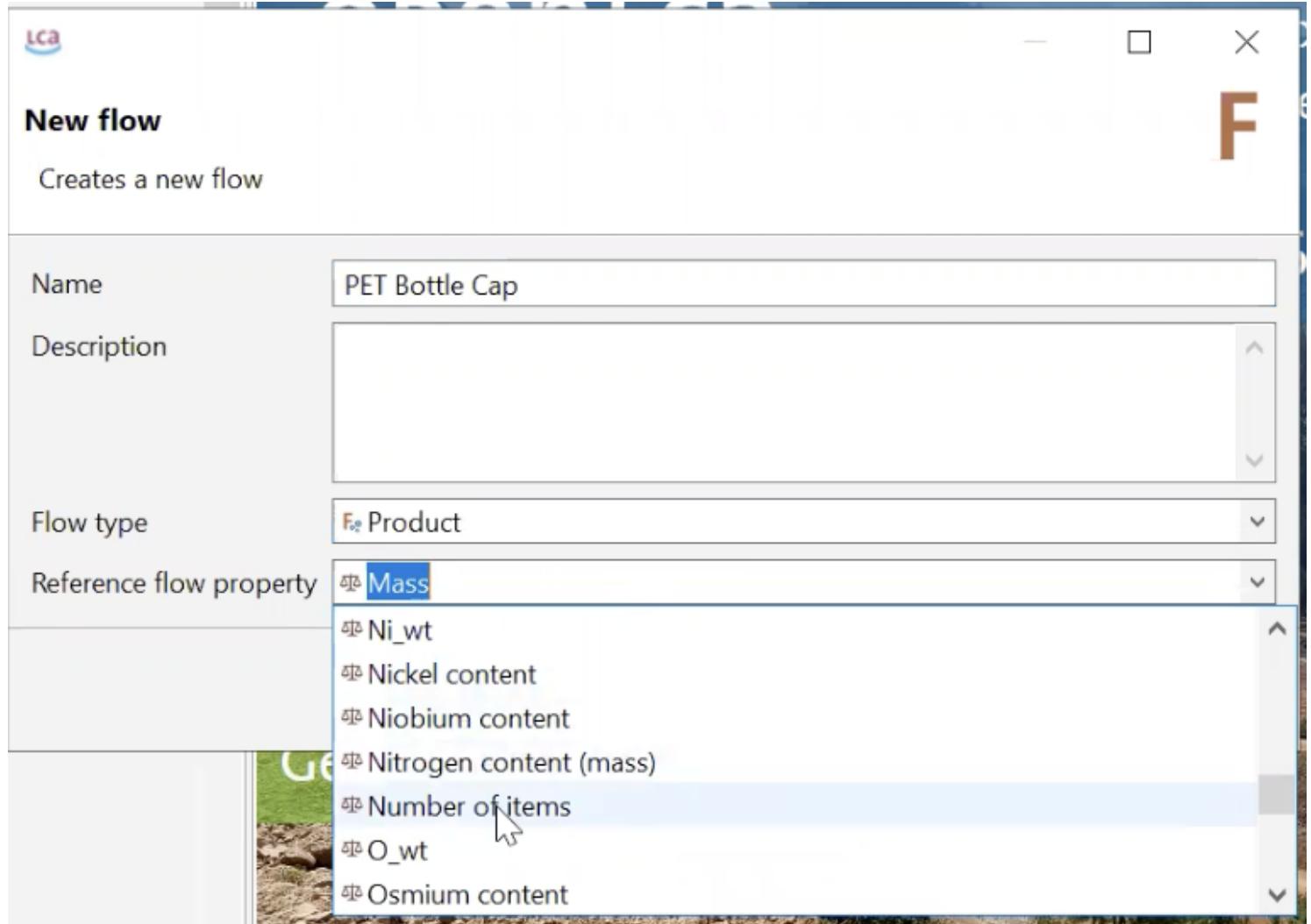
In our test, db took 9 minutes and still had not loaded.

## No way to kill import method

In order to kill the import method, subject had to go into activity monitor and kill the openLCA as none of the x buttons in openLCA were responding

## Ref flow property searcher in new flow wizard bad

There are hundred of options and yet it is not searchable, need to scroll and find



## Why are there 2 separate tabs for flow

Empty fields open by default, also description field in wizard prominently displayed despite anecdotally never being used

## General information: PET Bottle Cap

C

### General information

Name	PET Bottle Cap	
Description		
Category	 Water Bottle	Mutahar Safdar
Version	00.00.000	<input type="button" value="..."/>
UUID	784ddac8-6db9-44a4-afab-7b071a4586a7	
Last change	2022-09-29T13:37:29-0400	
Infrastructure flow	<input type="checkbox"/>	
Flow type	 Product	<input type="button" value="Create process"/>

### Additional information

CAS number	<input type="text"/>
Formula	<input type="text"/>
Synonyms	<input type="text"/>
Location	<input type="text"/>



## Flow properties: PET Bottle Cap

C

### Flow properties

Name	Conversion factor	Reference unit	Formula	
Number of items	1.0	Item(s)	1.0 Item(s) = 1	 Mutahar Safdar

General information Flow properties

Both tabs simply display information about flow

## Confusing process wizard

While trying to select PET Bottle Cap flow as the q ref for PBC flow, he clicks

LCA

### New process

No quantitative reference selected

Name	PET Bottle Cap
	<input type="checkbox"/> Create a waste treatment process
	<input checked="" type="checkbox"/> Create a new flow for the process (as quantitative reference)
Quantitative reference	<input type="text"/> <ul style="list-style-type: none"> <li>&gt; <input checked="" type="checkbox"/> Deposited goods</li> <li>&gt; <input checked="" type="checkbox"/> End-of-life treatment</li> <li>&gt; <input checked="" type="checkbox"/> Energy carriers and technologies</li> <li>&gt; <input checked="" type="checkbox"/> Materials production</li> <li>&gt; <input checked="" type="checkbox"/> Production residues in life cycle</li> <li>&gt; <input checked="" type="checkbox"/> Systems</li> </ul>
<input type="button" value="Finish"/> <input type="button" value="Cancel"/>	

LCA

### New process

Name	PET Bottle Cap
	<input type="checkbox"/> Create a waste treatment process
	<input checked="" type="checkbox"/> Create a new flow for the process (as quantitative reference)
Name of the new flow	<input type="text" value="I"/>
Reference flow property	<input type="button" value="Mass"/>
<input type="button" value="Finish"/> <input type="button" value="Cancel"/>	

This takes away his option to select the already existing flow and only creates new flow. He types in the name of the flow he is trying to add, thinking this will connect it to the existing flow, but instead it creates new flow

**New process**

P

Name	<input type="text"/>
	<input type="checkbox"/> Create a waste treatment process
	<input type="checkbox"/> Create a new flow for the process (as quantitative reference)
Quantitative reference	<input type="text" value="PET"/> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;"><ul style="list-style-type: none"><li>▼ <span style="color: #800000;">■</span> End-of-life treatment<ul style="list-style-type: none"><li>▼ <span style="color: #800000;">■</span> Energy recycling<ul style="list-style-type: none"><li>↳ waste incineration of plastics (PET, PMMA, PC)</li></ul></li><li>➢ <span style="color: #800000;">■</span> Energy carriers and technologies</li><li>➢ <span style="color: #800000;">■</span> Materials production</li><li>➢ <span style="color: #800000;">■</span> Water Bottle</li></ul></li></ul></div>
	<div style="text-align: right; margin-top: 10px;"><span style="border: 1px solid #ccc; padding: 5px 10px; margin-right: 10px;">Finish</span><span style="border: 1px solid #ccc; padding: 5px 10px;">Cancel</span></div>

Is showing the file structure here necessary? No

## Inputs/Outputs: Plastic Component Production

### Inputs

Flow	Category	Amount	Unit	Costs/R...	Uncertai...	Avoide...	Provider	Data qu...	Description
								Mutahar Safdar	

Flow	Category	Amount	Unit	Costs/R...	Uncertai...	Avoide...	Provider	Data qu...	Description
PET Bottle Cap	Water Bottle	1.00000	Item...		none				

Why are all those essential tabs hidden in the bottom

## Flows

### Filter

#### Content

- ▼  Elementary flows
  - ▼  Emission to air
    - ▼  high population density
      - Carbon dioxide, fossil, domestic air transport
    - >  indoor
    - >  low population density
    - >  low population density, long-term
    - >  lower stratosphere + upper troposphere
    - >  unspecified
  - ▼  Transport services

## Flows

### Filter

#### Content

- ▼ ■ Elementary flows
  - ▼ ■ Emission to air
    - ▼ ■ high population density
      - Carbon dioxide, fossil, domestic air transport
      - ■ indoor
      - ■ low population density
      - ■ low population density, long-term
      - ■ lower stratosphere + upper troposphere
      - ■ unspecified
    - ■ Transport services
    - ■ Water Bottle

No internal scroll bar in the flow adding wizard within process, so if your query is not specific enough that the list of possible options is within that box, good luck

You can, weirdly, extend that big box by changing the size of the wizard window to see option beneath it.

LCA

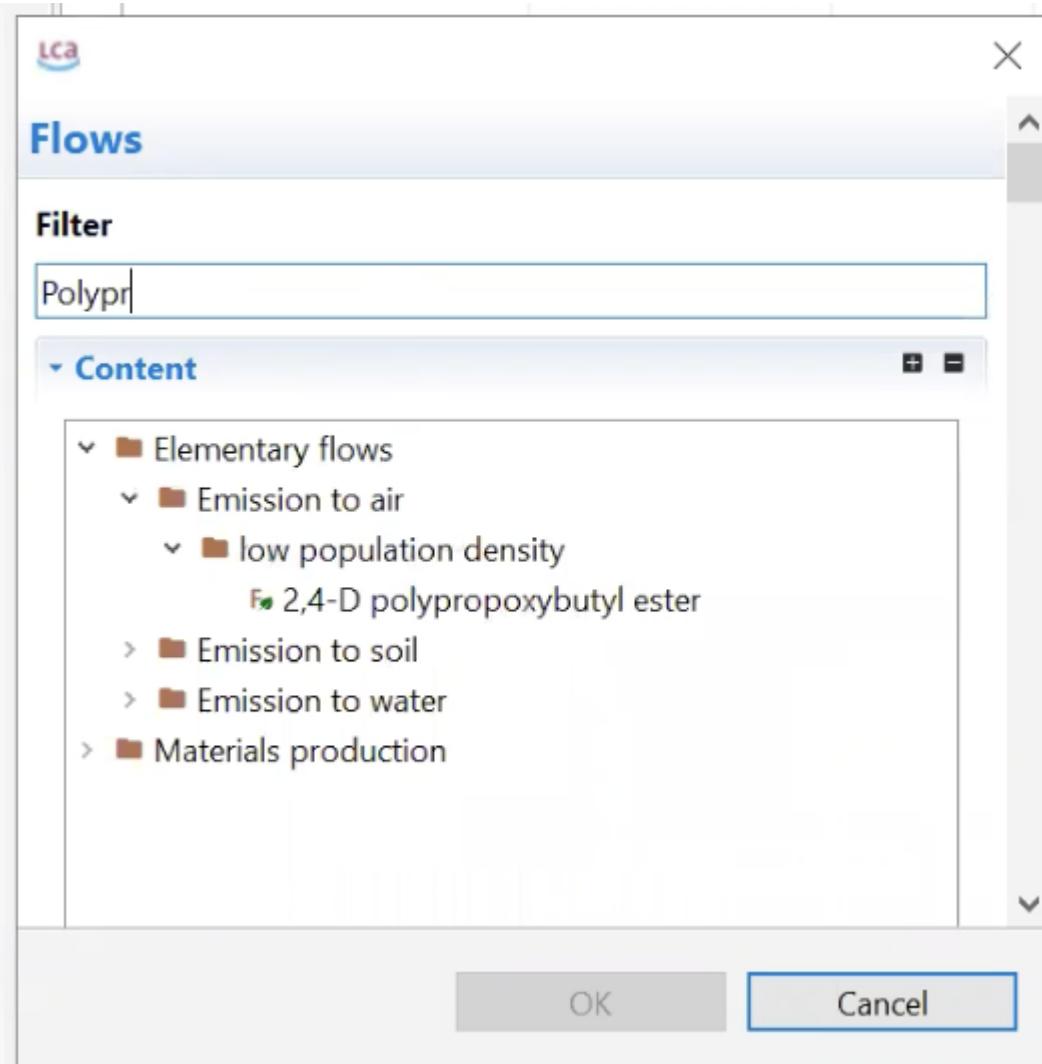
## Flows

Filter

Content

- Elementary flows
  - Emission to air
    - low population density
      - 2,4-D polypropoxybutyl ester
    - Emission to soil
    - Emission to water
  - Materials production

OK Cancel



Here, he types polypropylene and even though the material he wants exists (under Materials production > Plastics), the result is not shown. He needed to open it to see

LCA

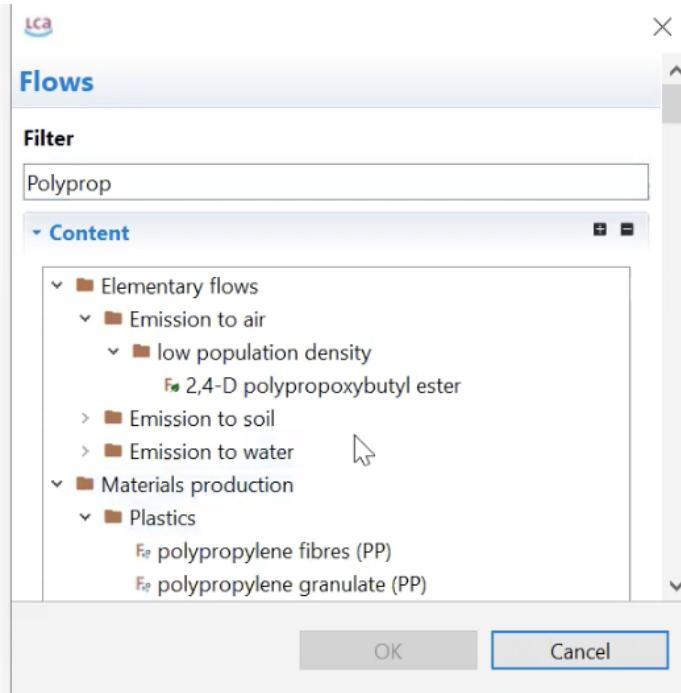
## Flows

Filter

Content

- Elementary flows
  - Emission to air
    - low population density
      - 2,4-D polypropoxybutyl ester
    - Emission to soil
    - Emission to water
  - Materials production
    - Plastics
      - polypropylene fibres (PP)
      - polypropylene granulate (PP)

OK Cancel



- CAN NEVER CHANGE A REFERENCE FLOW FOR A PROCESS
  - Well, you can but you need to add a placeholder,
  - Then change

## p Inputs/Outputs: Plastic Component Production

### Inputs

Flow	Category	Amount	Unit	Costs/R...	Uncertai...	Avoide...	Provider	Data qu...	Desc
Fr polyethylene terephthalate (PET)...	Materials producti...	0.06000	kg		none				
Fr polyethylene high density gran...	Materials producti...	0.00400	kg		none				
Fr polypropylene granulate (PP)	Materials producti...	0.00100	kg		none				

### Outputs

Flow	Category	Amount	Unit	Costs/R...	Uncertai...	Avoide...	Provider	Data qu...	Desc
Fr PET Granulates	Water Bottle	0.06500	kg		none				

LCA openLCA 1.10.3

File Database Tools Help

Navigation

- Dummy processes
- End-of-life treatment
- Energy carriers and technologies
- Materials production
- Systems
- Transport services
- Water Bottle
- Plastic Component Production
- Flows
- Deposited goods
- Elementary flows
- Emissions
- End-of-life treatment
- Energy carriers and technologies
- Materials production
- Production residues in life cycle
- Systems
- Transport services
- Wastes
- Water Bottle
- Granulates (PC, HDPE, PP), transported
- Granulates (PC, LDPE, PB)
- Granulates (PET, HDPE, PP), transported
- Granulates (PET, HDPE, PP)
- PC Bottle, filled
- PET Bottle, filled
- Aluminium waste
- Asbestos
- Asphalt waste
- Rubber oil

**Inputs/Outputs: Plastic Component Production**

**Inputs**

Flow	Category	Amount	Unit	Costs/Re...	Uncertainty	Avoided ...	Provider	Data qual.
polyethylene terephthalate...	Materials productio...	0.06000	kg		none			
polyethylene high density ...	Materials productio...	0.00400	kg		none			
polypropylene granulate (P...	Materials productio...	0.00100	kg		none			

**Outputs**

Flow	Category	Amount	Unit	Costs/Re...	Uncertainty	Avoided ...	Provider	Data qual.
PET Granulates	Water Bottle	0.06500	kg		none			

Mutahar renames PET Granulates to Granulates (PET, HDPE, PP), but the updated name does not show up in the process outputs table, despite it being the same flow

In order to update the name, Mutahar had to delete and then bring back

Copper tube; technology mix; market mix, at plant; diameter 15 mm

Materials production / Metals and semimetals / Copper tube; technology mix; market mix, at plant; diameter 15 mm, 1 mm thickness, Technology and Market Mix for Tube fabrication representing main European production countries, Market

Copper wire; technology mix; market mix, at plant; cross section 1

Lead primary and secondary mix, production mix, at producer, te

When interacting with the database, there are some very long string names that appear to be the same in the start, but hold vital information near the end of the string that differentiates them (for example location). However, the way that they are displayed makes it seem like it's the exact same string until you hover over it, which is when it will display the full string

Inputs/Outputs: PET Bottle Filling										
Inputs										
Flow	Category	Amount	Unit	Costs/R...	Uncertai...	Avoide...	Provider	Data qu...	Descri...	
F <sub>e</sub> Granulates (PET, HDPE, ...	Water Bottle	1.00000	Item(s)		none		P PET Tr...			
F <sub>e</sub> drinking water	Materials producti...	1.00000	kg		none		I			

Must select providers manually one by one, even if there is only one. Sometimes there are many

Inputs/Outputs: PET Bottle Filling										
Inputs										
Flow	Category	Amount	Unit	Costs/R...	Uncertai...	Avoide...	Provider	Data qu...	Descri...	
F <sub>e</sub> Granulates (PET, HDPE, ...	Water Bottle	1.00000	Item(s)		none		P PET Tr...			
F <sub>e</sub> drinking water	Materials producti...	1.00000	kg		none		P Drinki...			

Outputs										
Flow	Category	Amount	Unit	Costs/R...	Uncertai...	Avoide...	Provider	Data qu...	Descri...	
F <sub>e</sub> PET Bottle, filled	Water Bottle	1.06500	kg		none					

To balance this ( $1.065\text{kg} = 1\text{kg}$ , 1 item (650g)), mutahar needs to remember the weight of the water bottle. The software throws no errors if you make this very non obvious mistake

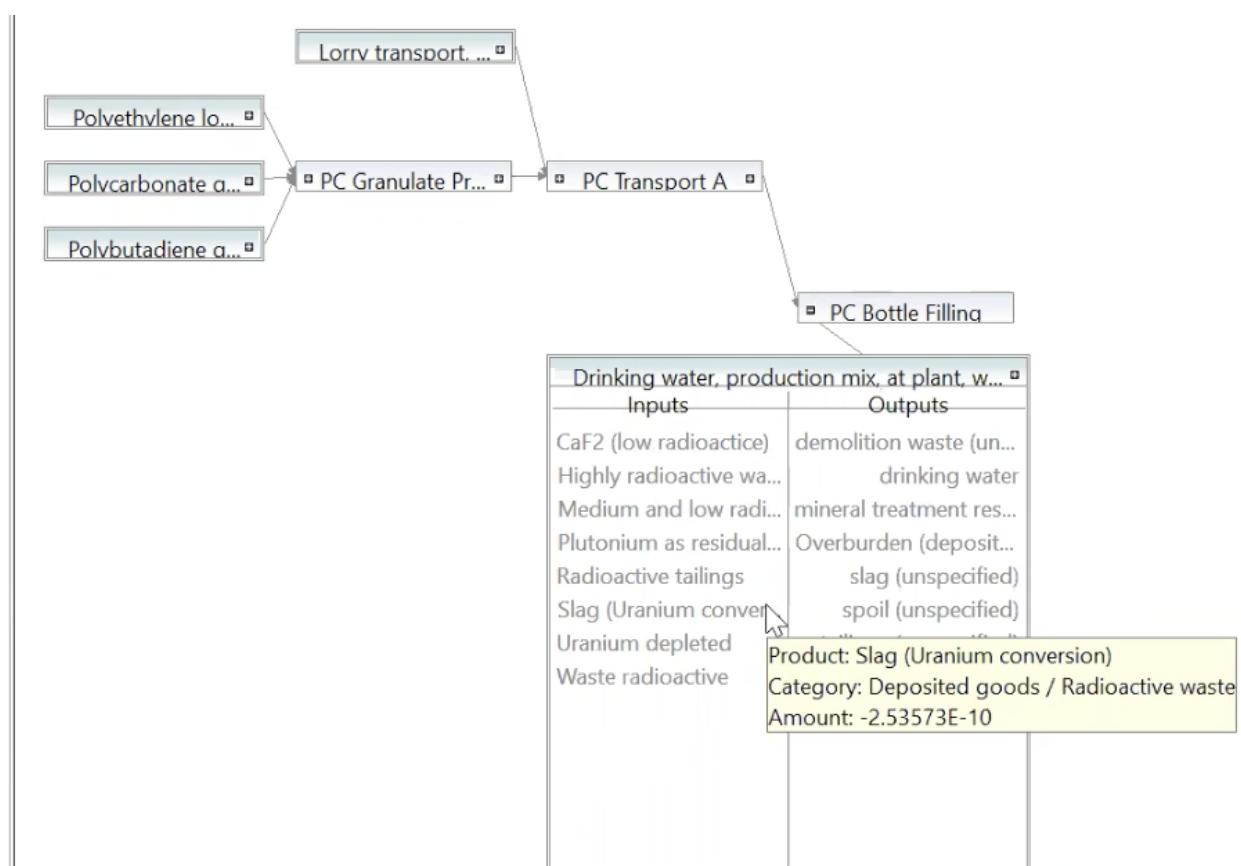
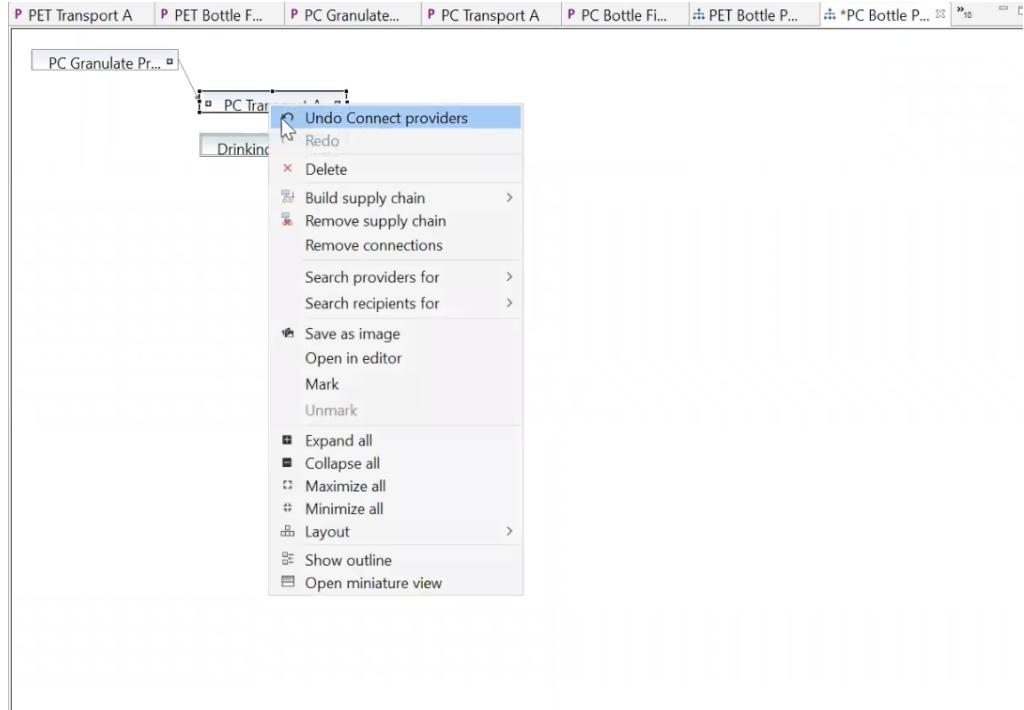
The screenshot shows a software interface for creating a product system. At the top, there is a navigation bar with several tabs: Plastic Comp..., PET Transport A, Search results, PET Bottle F..., PC Granulate..., PC Transport A, PC Bottle Fi..., and a few others partially visible. Below the navigation bar, the title "General information: PET Bottle Filling" is displayed. The main content area is divided into sections:

- General information:** This section contains fields for Name (PET Bottle Filling), Description (empty), Category (Water Bottle), Version (00.00.003), UUID (56363012-69c2-4af1-beef-4d5c42913b46), Last change (2022-09-29T14:20:02-0400), and Infrastructure process (checkbox). Below these fields are three buttons: "Create product system" (highlighted with a cursor), "Direct calculation", and "Export to Excel".
- Time:** This section includes Start date (2022-09-29) and End date (2022-09-29) fields, both with calendar icons, and a large empty Description text area.
- Geography:** This section has fields for Location (dropdown menu), KML (none), and a large empty Description text area.
- Technology:** This section includes a "Description" field and a horizontal tab bar with the following options: General information, Inputs/Outputs, Administrative information, Modeling and validation, Parameters, Allocation, Social aspects, and Impact analysis. The "General information" tab is currently selected.

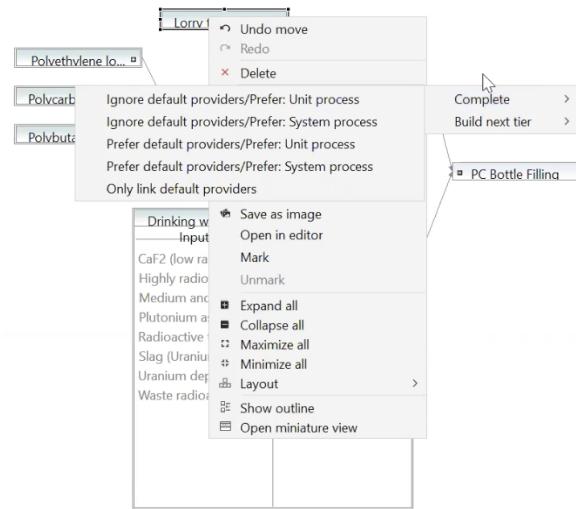
Whilst creating the PET product system, he creates it from the PET Bottle Filling process to keep it as a reference. This is unintuitive. You can also do it by right clicking on product systems process and then specifically add ref process. Why not just have one way? Whats the point all these options

Manual linking is very error prone and tedious, why have it as an option at all?

## Manual linking seems extremely tedious



You don't know where you have to stop with manual linkage. You can just go on and on



Only reasonable way to do it is to use the complete function, which is just automatic linking

Which is what mutahar ended out doing

P PET Bottle F... P PC Granulate... P PC Transport A P PC Bottle Fi... PET Bottle P... \*PC Bottle P... \*Water Bottl... »<sub>11</sub>

## Project setup: Water Bottle PET vs PC production

**General information**

Name	Water Bottle PET vs PC production
Description	
Version	00.00.000
UUID	d81956af-1eff-488a-a2cf-1b5b90249ae6
Last change	2022-09-29T14:32:49-0400

[Report](#)

**LCIA Method**

LCIA Method	CML-IA baseline
Normalization and weighting set	

Impact category	Display	Label in report	Description
Abiotic depletion	<input checked="" type="checkbox"/>	Abiotic depletion	
Abiotic depletion (fossil fuels)	<input checked="" type="checkbox"/>	Abiotic depletion (fossil ...	
Acidification	<input checked="" type="checkbox"/>	Acidification	
Eutrophication	<input checked="" type="checkbox"/>	Eutrophication	

**Compared product systems**

Name	Product system	Display	Allocation me...	Flow	Amount	Unit	Description
PC	PC Bottle Pr...	<input checked="" type="checkbox"/>	None	F <sub>e</sub> PC Bottle, fi...	1.065	kg	
PET	PET Bottle P...	<input checked="" type="checkbox"/>	None	F <sub>e</sub> PET Bottle, f...	1.065	kg	

Project creation wizard is overtly detailed, lcia impact category non searchable, so much non actionable data is displayed. Furthermore, the Report button does not make it clear a report will be created. Also, there is no 'select all, or deselect all button for impact category so mutahar had to go through all of them and manually deselect them any that he did not need. Just so much bloat man