TG1.2 Automatic QC/QA of impact model output – valid ranges for the QC-tool

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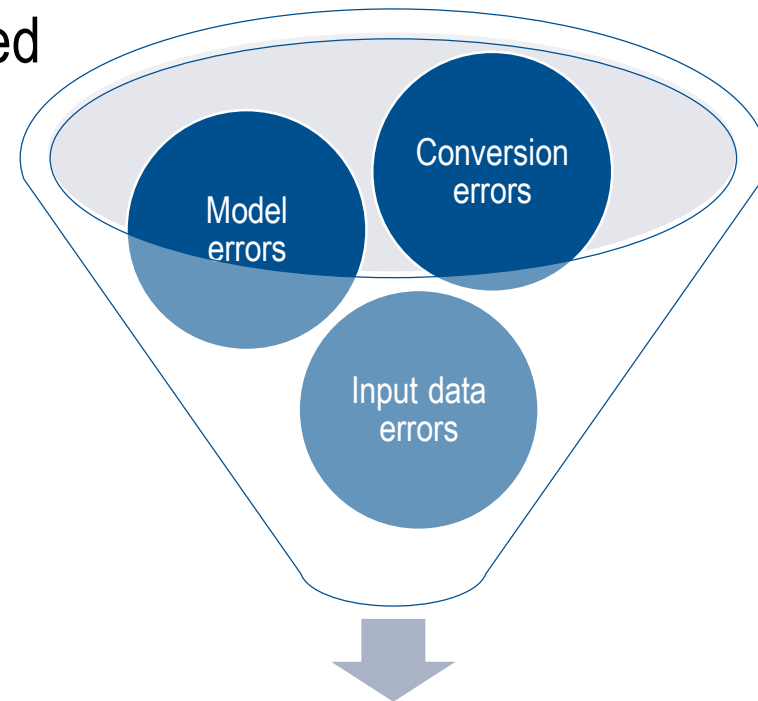
- A model produces often a huge amount of output variables, driven by various forcings and scenarios → errors can be overseen

- If model output variables are within plausible / valid ranges, the probability of errorneous data is reduced

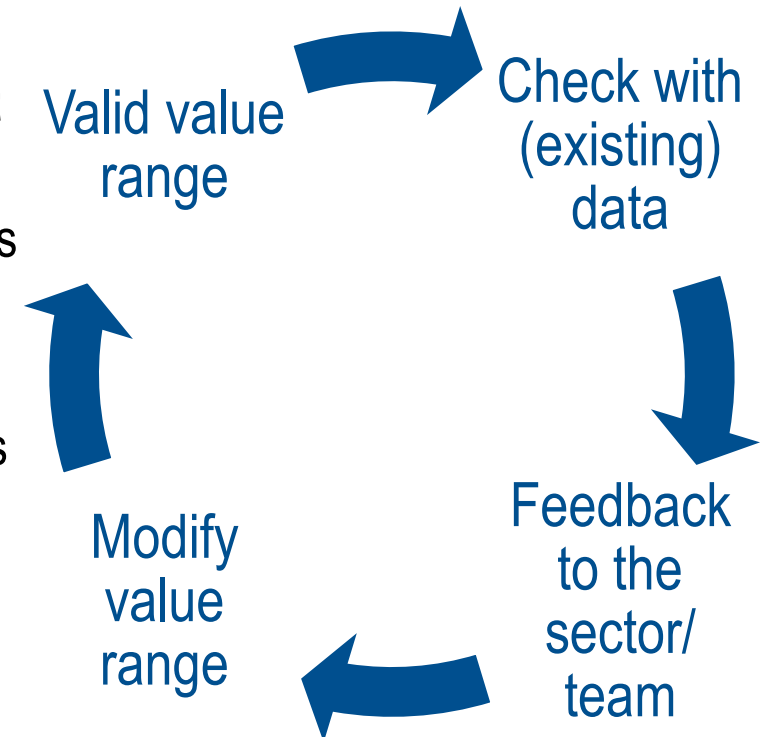© Nick Youngson CC BY-SA 3.0 Alpha Stock Images

Model errors

Conversion errors

Input data errors

Implausible output variable

- **A number can be a valid min/max value if:**
  - it stands for a physical limitaton (e.g. no negative river discharge)
  - it stands for a process-based limitation (e.g. trees cannot grow higher than 120 m)
  - it is based on modeller's / data analyist's / experts knowledge (e.g. runoff values > 10.000 mm/month is not very likely)

- **A valid value might differ for geographical regions or time spans**
  - e.g. occurence of extreme precipitation events can lead to unusual high runoff values
- **A value can be physically implausible but still valid**
  - e.g. negative groundwater storage values as only anomalies are of interest

  →both, expert knowledge and data analysis is required to reach valid value ranges
 →**we need a starting point!**

Valid value range → Check with (existing) data → Feedback to the sector/ team → Modify value range → (back to Valid value range)

- There are posters for each variable group → search for the variables of your expertise
- Please consider the variable unit as provided. In case your inserted value deviate in terms of the unit, please indicate the unit used.
- There are A4- printouts with variable definitions close to the posters
- Can we reach the **goal to get an initial value range for each variable** by the end of the workshop?
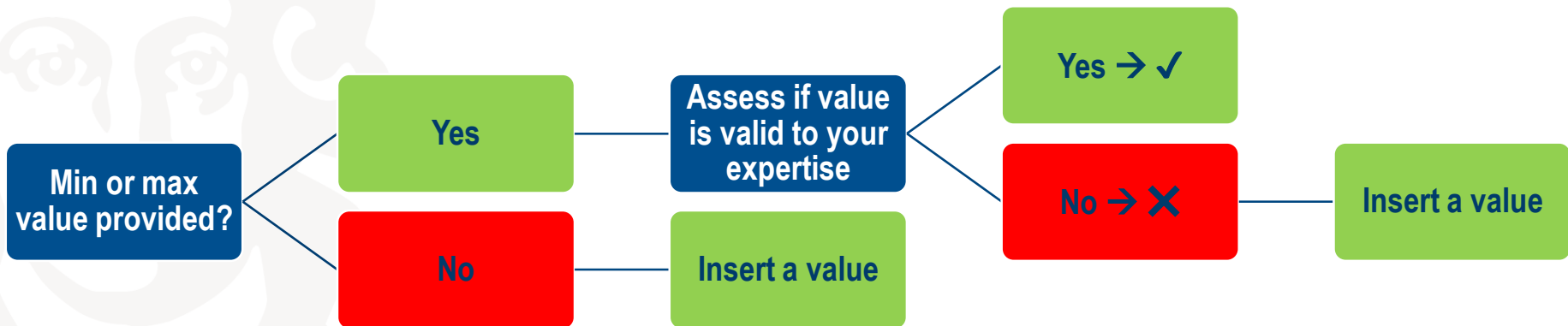
- We will collect the valid ranges, translate units (if required) and implement the valid ranges to the QC-tool.

- In case valid ranges are missing, ISIMIP sectoral coordinators will be contacted to help to fill in.

- The valid value range cycle will be started with the aim to generate meaningful value ranges that helps to generate plausible model output

Valid value range → Check with (existing) data → Feedback to the sector/ team → Modify value range → Valid value range
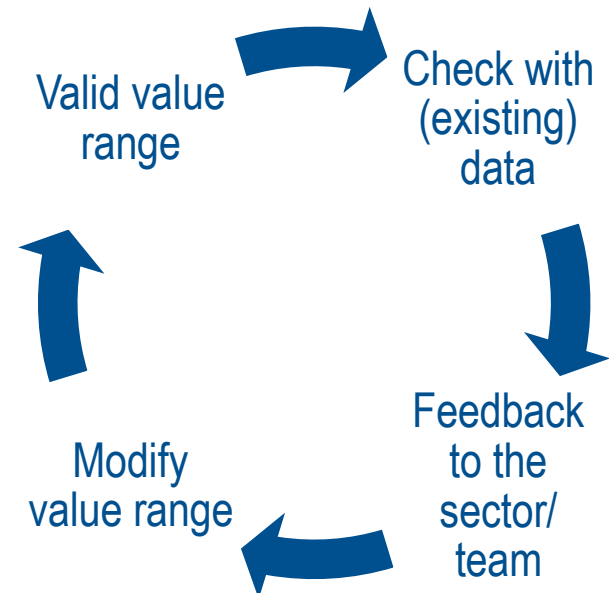
- Own model output
- Other model processes / restrictions
- Other sectors
- Input data
- Extreme events
- …

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