Stress sub-group meeting
December 18th 2014
Agenda

1) 3 indicators modeling
   • Linear
   • S-curve
   • Proposal Alessandro

2) Modelling questions and challenges

3) EWR Pastor vs Hanasaki
DTA - linear
Modelled between 0 and 1
Lower 20% of basins = 0.01
Higher 20% of basins = 1

DTA – S-curve
DTA2 - linear

Modelled between 0 and 1
Lower 20% of basins = 0.01
Higher 20% of basins = 1
DTA2X - linear

Modelled between 0 and 1
Lower 20% of basins = 0.01
Higher 20% of basins = 1

Demand * Area^{1/2}  
Availability * (availability)^{1/2}

DTA2X – S-curve
UW - linear

(Availability – Demand)

Modelled between 0 and 1
Lower 20% of basins = 0.01
Higher 20% of basins = 1
Linear in between
Modelling Questions

1) Thresholds upper and lower
2) Linear vs S-curve
3) Ratio between minimum and maximum
4) Temporal aggregation to annual: average or weighted average?
Pastor vs Hanasaki

Input from A. Pastor:
The Hanasaki method allocates between 10-30% of mean monthly flow depending on different flow regime without differentiation between low-high flows.

With the VMF method they allocate between 30-60% of mean monthly flow with a focus on sustaining ecosystems during dry season (60% of monthly flow allocation), therefore they defined 3 periods: high flow-intermediate flow and low flows.

Note: High flows are determined as if MMF is above 80 % of MAF, intermediate flows as if MMF is between 40 % and 80 % of MAF, and low flows as if MMF is below 40 % of MAF.
Pastor vs Hanasaki (cont.)

Input from Shirakawa/Masaharu:
In Asian monsoon areas, water flow is not so stable and more fluctuate due to climate conditions like intensive precipitation. Thus, "simple" average flow amount tend to be higher than the actual flows. In this context, EWR was determined based on more severe criteria like 0.1-0.3q (q: average flow).

On the other hand, in Europe and continental climate areas, water flow is basically stable and stable flow is normally assumed to be healthy natural condition. Thus, the criteria of EWR should be more moderate like 0.2-0.4q. Pastor et al. might determine the criteria based on this concept (mainly assumed continental conditions).

According to these differences, he considers that the model by Pastor et al. will fit to regions with stable flow while the model by them will fit to regions with more fluctuating flow.

→ average does not make sense
→ Combination of both according to climate?
Next Steps

1) Final modelling
2) Workshop paper
3) Next meeting
HAPPY HOLIDAYS!!