

Supplementary Material

**Table S1.** Major soil types in the Namoi alluvium (areal coverage was derived with the ARCGISTM software). Source [1].

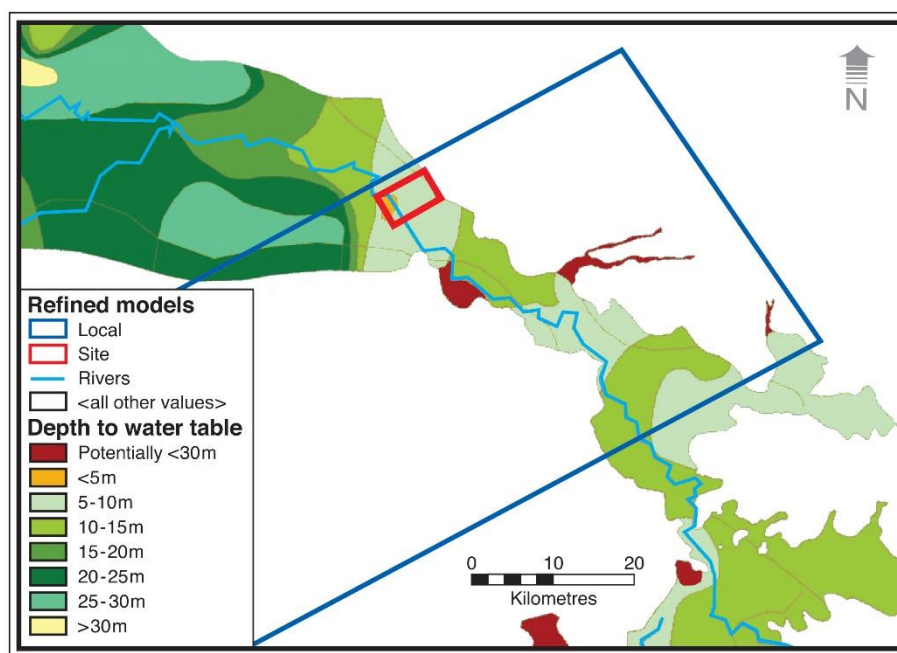
| Order   | Great Soil Group  | Constituent of Namoi Alluvium (% of Total Area) |
|---|---|---|
| Vertosols                                     | Grey, brown and red clays: heavy textured uniform clays (>35% clay)   | 63.3  |
| Vertosols                                     | Black earths (chernozems): clay texture (>35% clay), with a good granular structure in the surface soil                           | 23.9  |
| Sodosols                                      | Solodic and solodised soils: sandy to loamy surface soil with abrupt textural B horizon   | 5.6   |
| Chromosols                                    | Red brown earths: loam to sandy-loam surface soil overlying a reddish-brown clay subsoil with clay loamy, silty to clayey texture | 3.6   |
| Chromosols                                    | Non-calcic brown soils: clear textural B horizon (sandy clay, clay loam, silty loam and silty clay loam texture)                  | 1.2   |
| Others (Ferralsols, Rudosols, Tenosols, etc.) | Euchrozems, Lithosols, Orthic tenosols (earthy sands)   | 2.4   |

**Table S2.** Soil depth expressed as depth to groundwater based on the site groundwater flow model (24 km<sup>2</sup>).

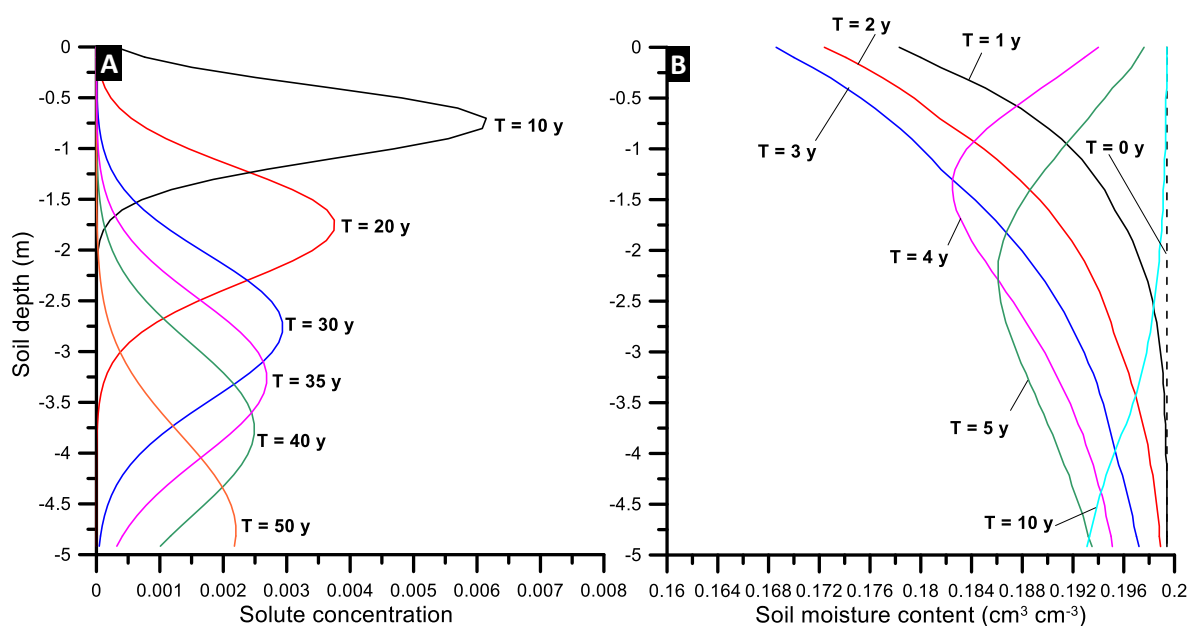
| Range of Depths to Groundwater (m) | Area (km <sup>2</sup> ) | Percent of the Model |
|------------------------------------|-------------------------|----------------------|
| 0–4.99                             | 19.99                   | 83.3                 |
| 5–9.99                             | 4.01                    | 16.7                 |
| 10–19.99                           | 0                       | 0                    |
| 20–30                              | 0                       | 0                    |

**Table S3.** Soil depth expressed as depth to groundwater based on the sub-regional groundwater flow model (108 km<sup>2</sup>).

| Range of Depths to Groundwater (m) | Area (km <sup>2</sup> ) | Percent of Sub-Regional Model |
|------------------------------------|-------------------------|-------------------------------|
| 0–4.99                             | 71                      | 65.7                          |
| 5–9.99                             | 5                       | 4.6                           |
| 10–19.99                           | 8                       | 7.4                           |
| 20–29.99                           | 4                       | 3.7                           |
| 30 and above                       | 20                      | 18.5                          |



**Figure S1.** Depth to water table within the alluvial groundwater modelling domains. Source: [1].



**Figure S2.** Solute concentration (A) and soil moisture content (B) versus soil depth. Loam soil for the 0.35 mm/year leak rate and 20 mm/year recharge rate. The soil moisture content at  $t = 0$  years corresponds to the steady-state water content obtained from the warming-up period.