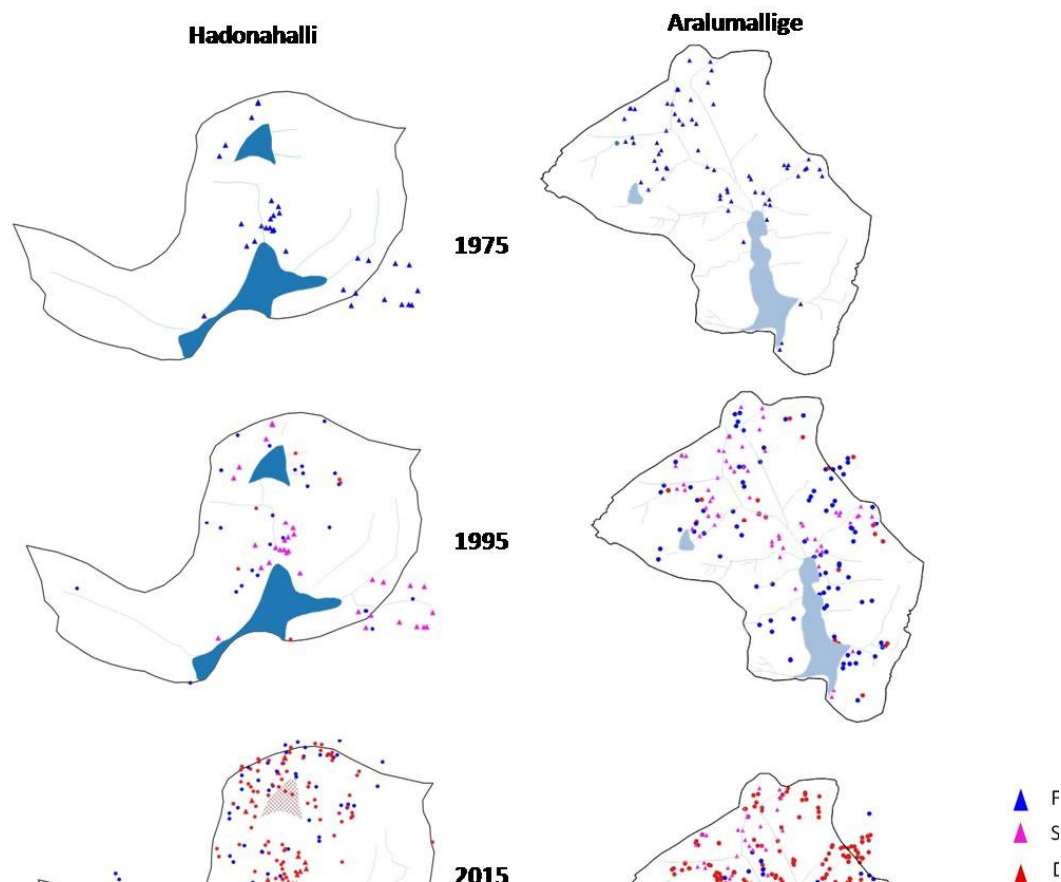


SUPPLEMENT 3:

This supplement presents the groundwater data collected in TG Halli watershed.

Fig S3.1 Well Census Results

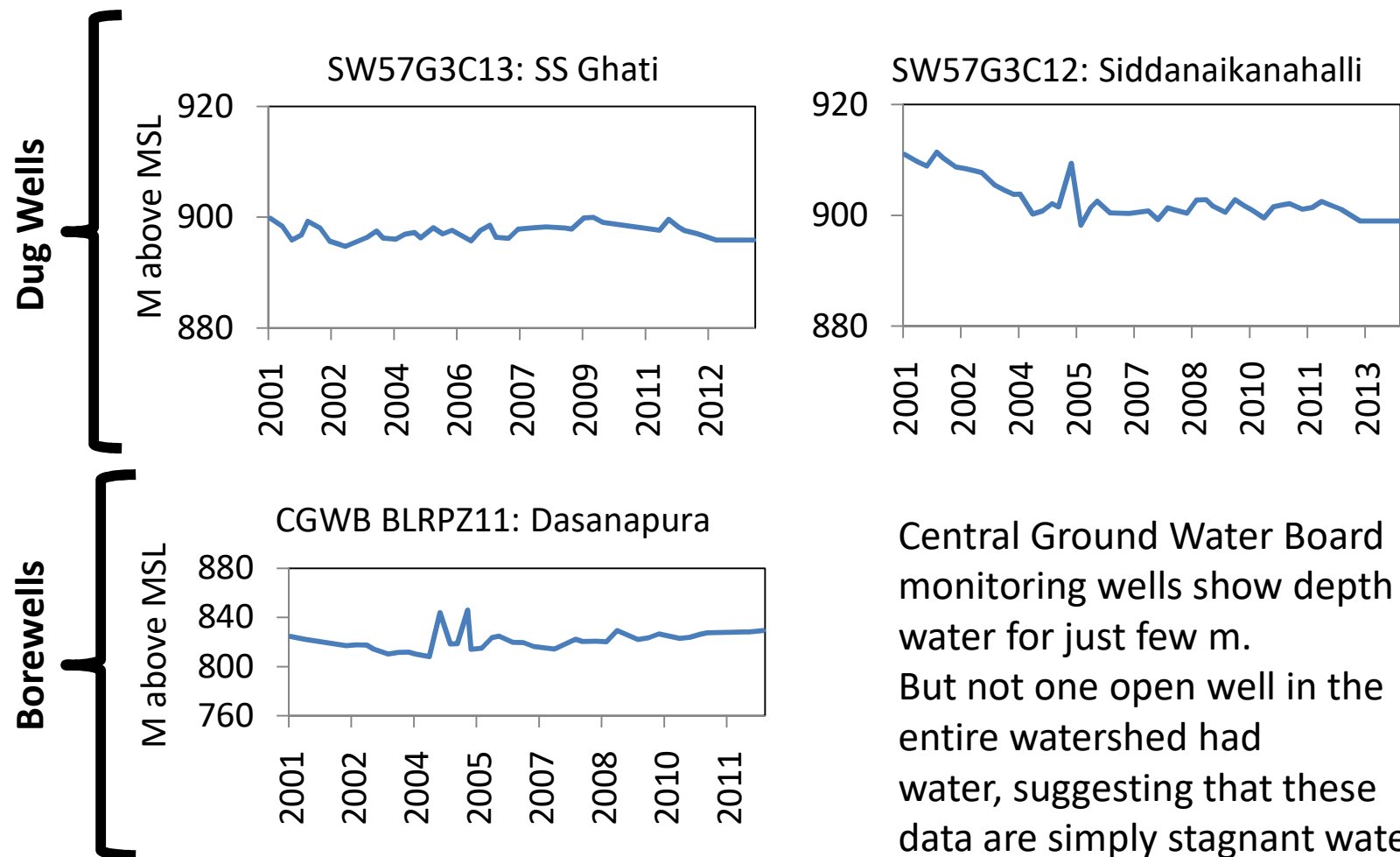


The open and borewell census helped reconstruct the history of groundwater development in the two milliwatersheds.

In the 1970s, there were mainly functioning open wells located along stream channels.

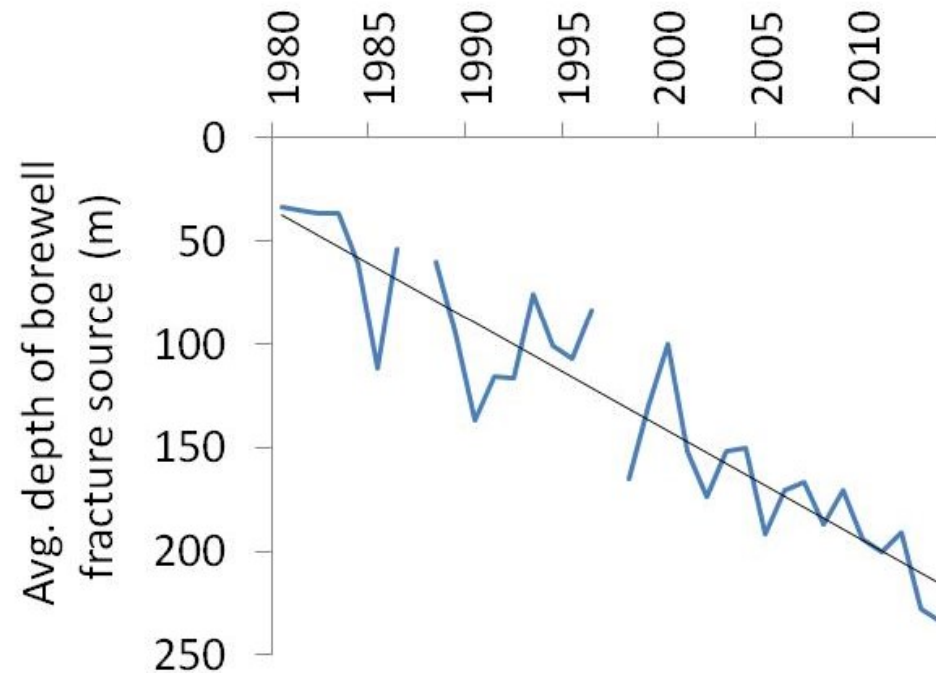
By 2015, the open wells were all dry. Borewells were located throughout the watershed, the vast majority of them abandoned.

Fig S3.2 Groundwater levels: From monitoring well data



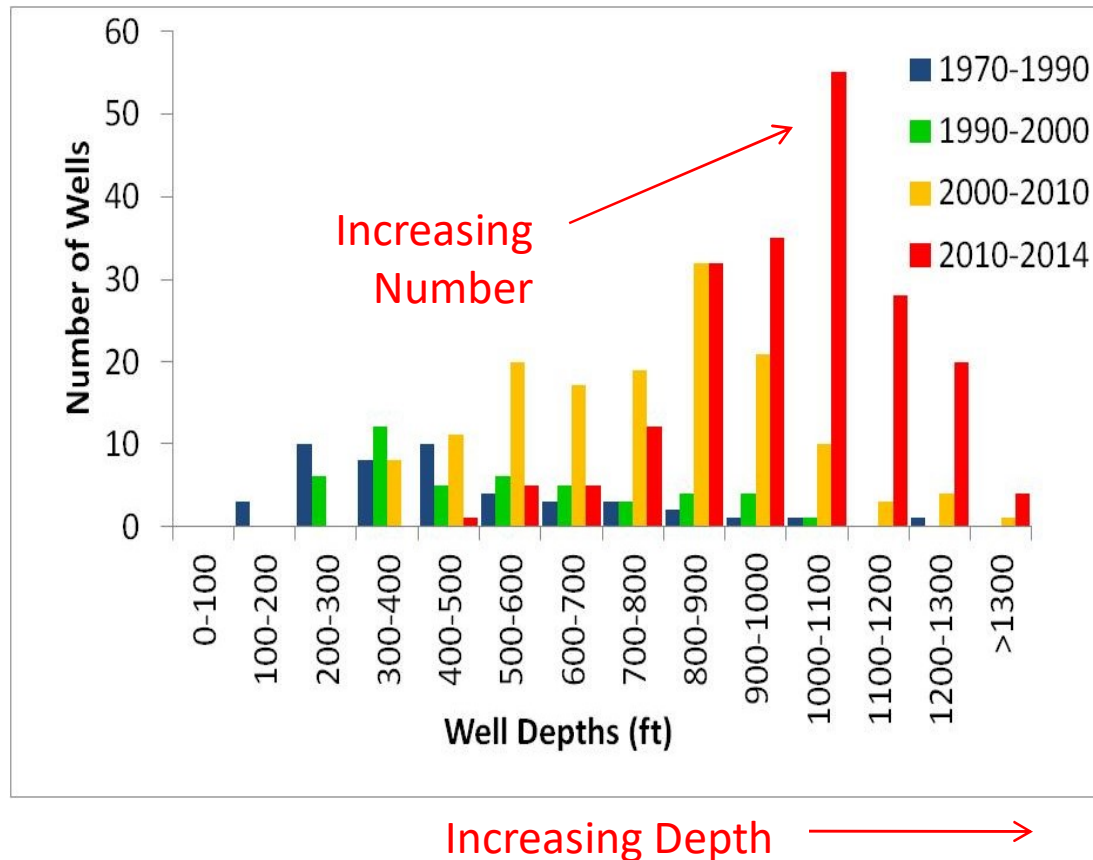
Central Ground Water Board monitoring wells show depth to water for just few m. But not one open well in the entire watershed had water, suggesting that these data are simply stagnant water in borewells.

Fig S3.3 Groundwater: Depletion inferred from well census



Depth at which water was first encountered in fractures in newly dug borewells is completely inconsistent with the groundwater level monitoring data.

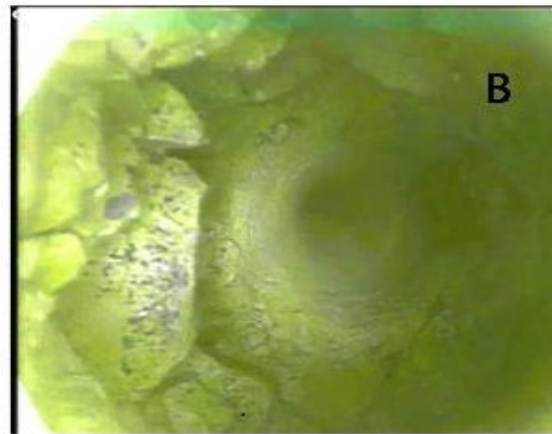
Fig S3.4 Borewell Census Data: Histogram



- Farmers have been drilling deeper and deeper borewells
 - Yet, the number of functioning borewells has increased.
- => More, deeper borewells irrigating a smaller area.

Source: Primary Surveys - Well Census in two milli-watersheds

Fig S3.5 Borewell Camera Scans



Photographs showing A: dry cavitated joint B: rock weathering in the joints under water; C: cascading flows and D: point springs as seen in the scans.

Fig S3.6 Location of Borewell Camera Scans

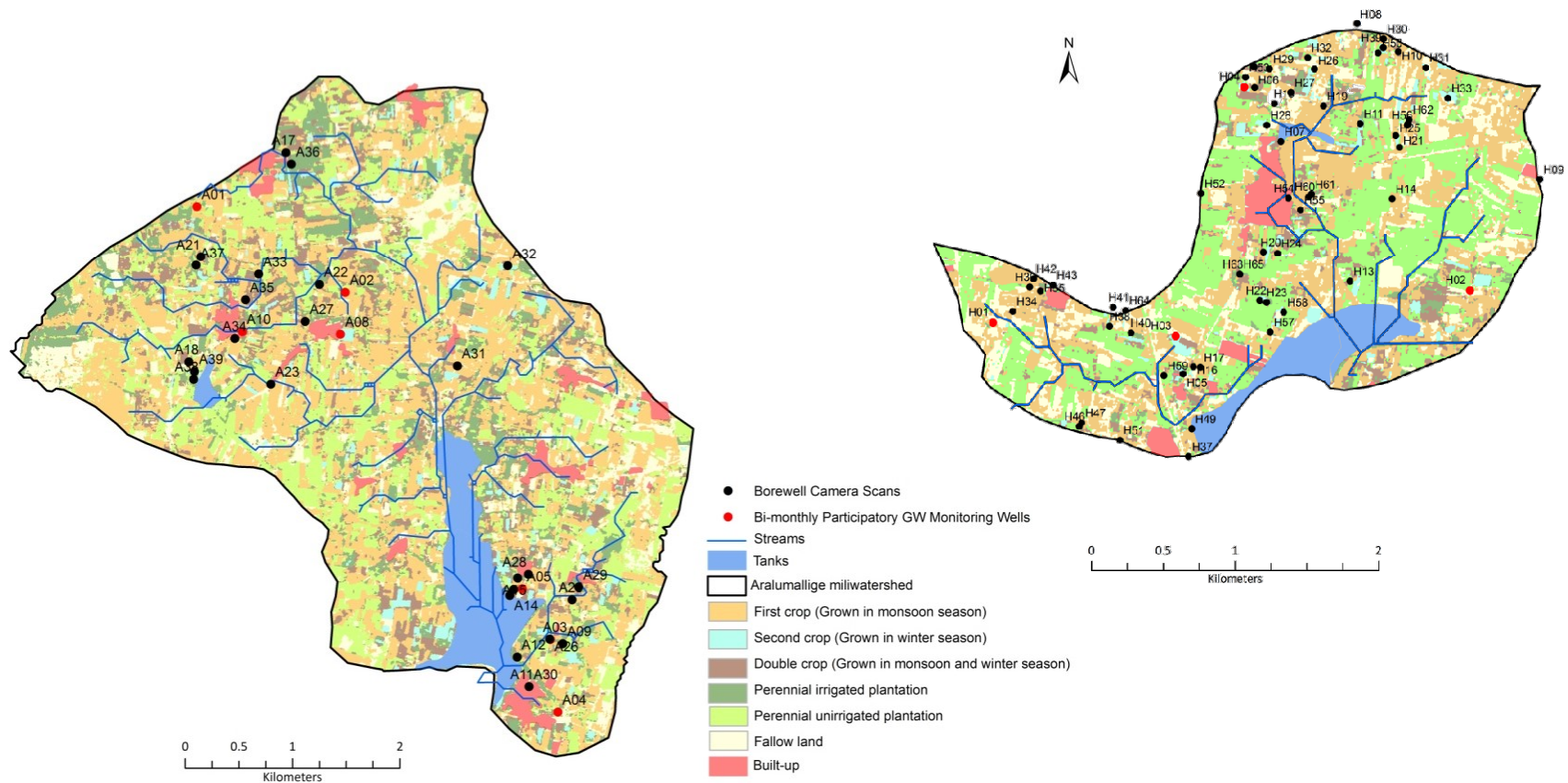
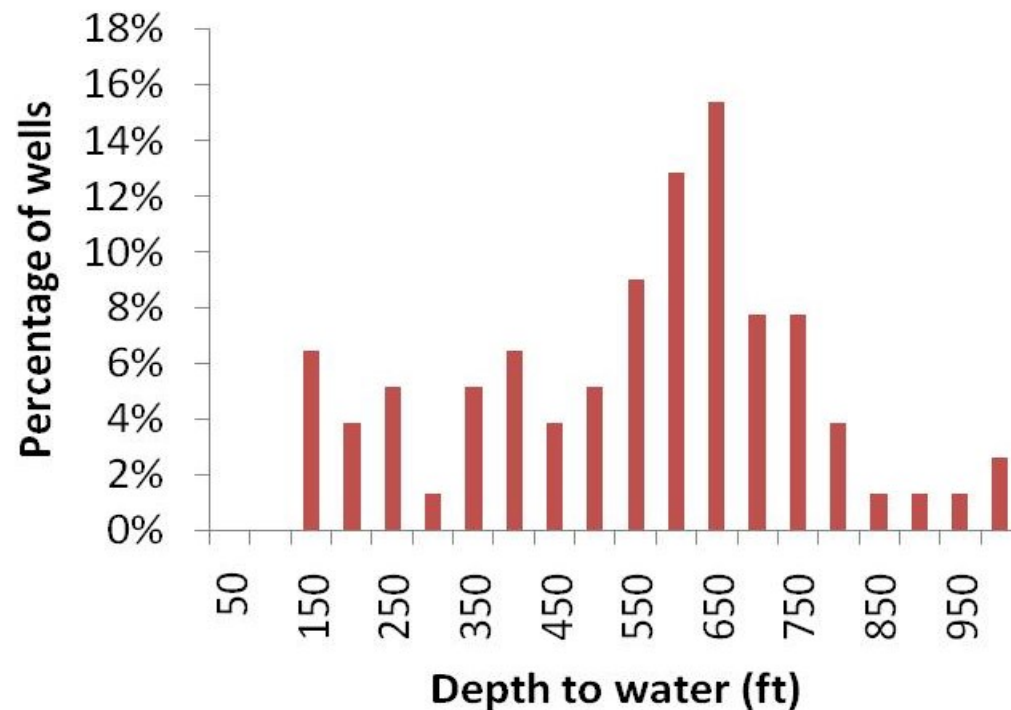


Fig S3.7 Groundwater: Depth to groundwater 2015-16

Borewell camera scans confirm that while depths to static water level are variable, the typical depth to water is around 650 ft below ground.



Source: Depth to water from camera scans

Fig S3.8 Groundwater: Bulk porosity of aquifer

Fracture density was used to estimate specific yield with depth.

