

# Supplementary Material: Kiln-Net: A Gated Neural Network for Detection of Brick Kilns in South Asia

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## 1 TRAINING DATASET

Examples of training dataset named *Asia14* is shown in Fig 1. It consists of 14 classes including brick kilns, houses, roads, tennis courts, farms, grass, sparse forest, dense forest, parking lots, parks, ponds, tanks, mosques and barren lands. *Asia14* dataset is now published on our website<sup>1</sup>. We have now uploaded all the kiln annotations that we used as well as additional annotations that we produced during this work in the form of KML files on our website. These KML files contain over 10,900 annotations and their associated images can be viewed and downloaded from Google Maps using a python script which is also available on our website.

## 2 EVALUATION RESULTS

Our proposed Kiln-Net is trained on Indo-Pak region. Even with this fact, Kiln-Net detects all the kilns despite of sensor, structural, dynamic surroundings and environmental variations in different regions of South Asia. In Afghanistan kilns are confused with the barren land even for human eye. Results of proposed Kiln-Net on Afghanistan are shown in Fig. 2. In Pakistan most kilns are of oval shape (see Fig. 3), in India we can see the circular and rectangular shape kilns (see Fig. 4). In Nepal and Bangladesh most kiln sites are surrounded by orchards and houses respectively as shown in Fig. 5.

1. <https://cvlab.lums.edu.pk/kiln-net/>

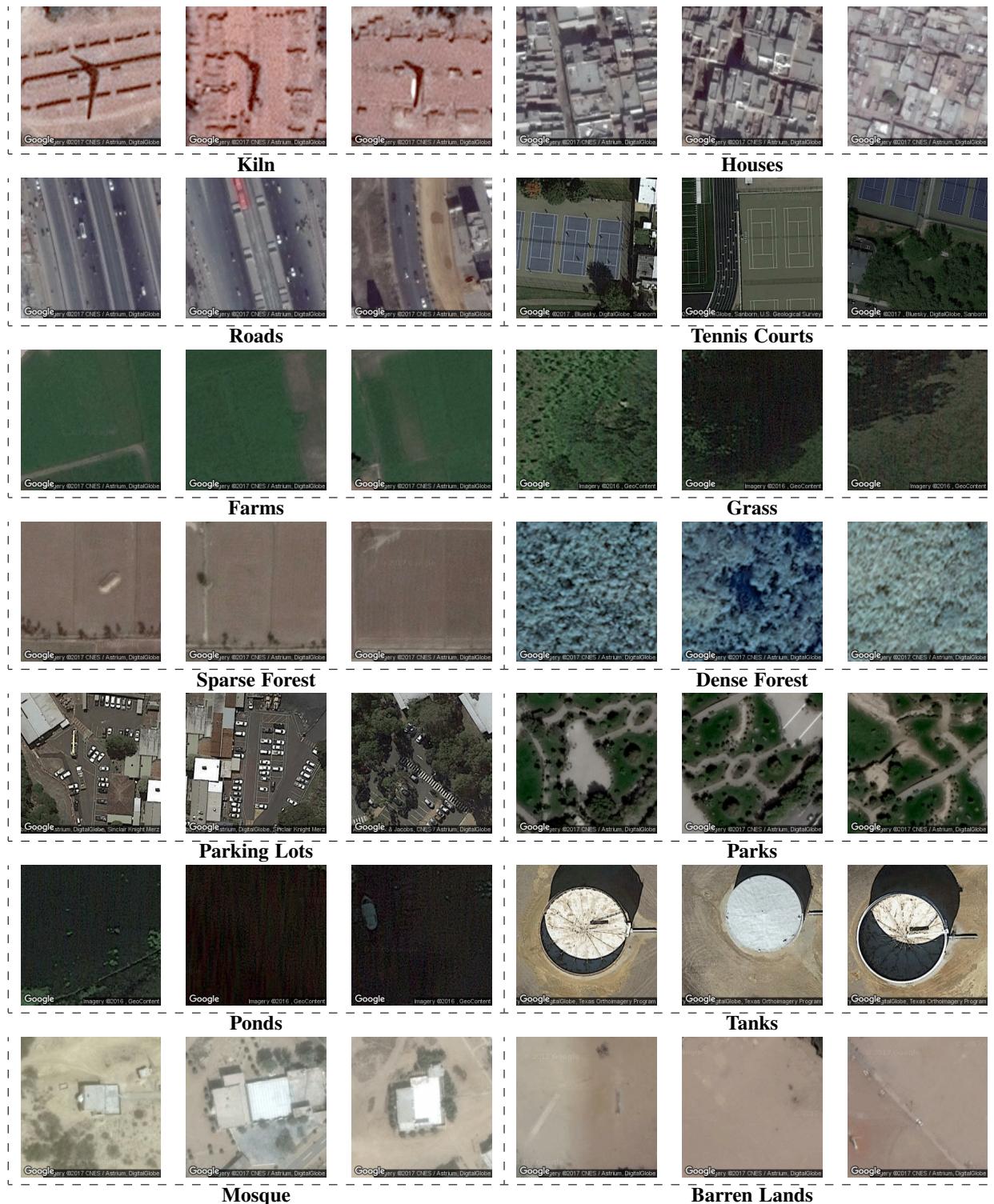
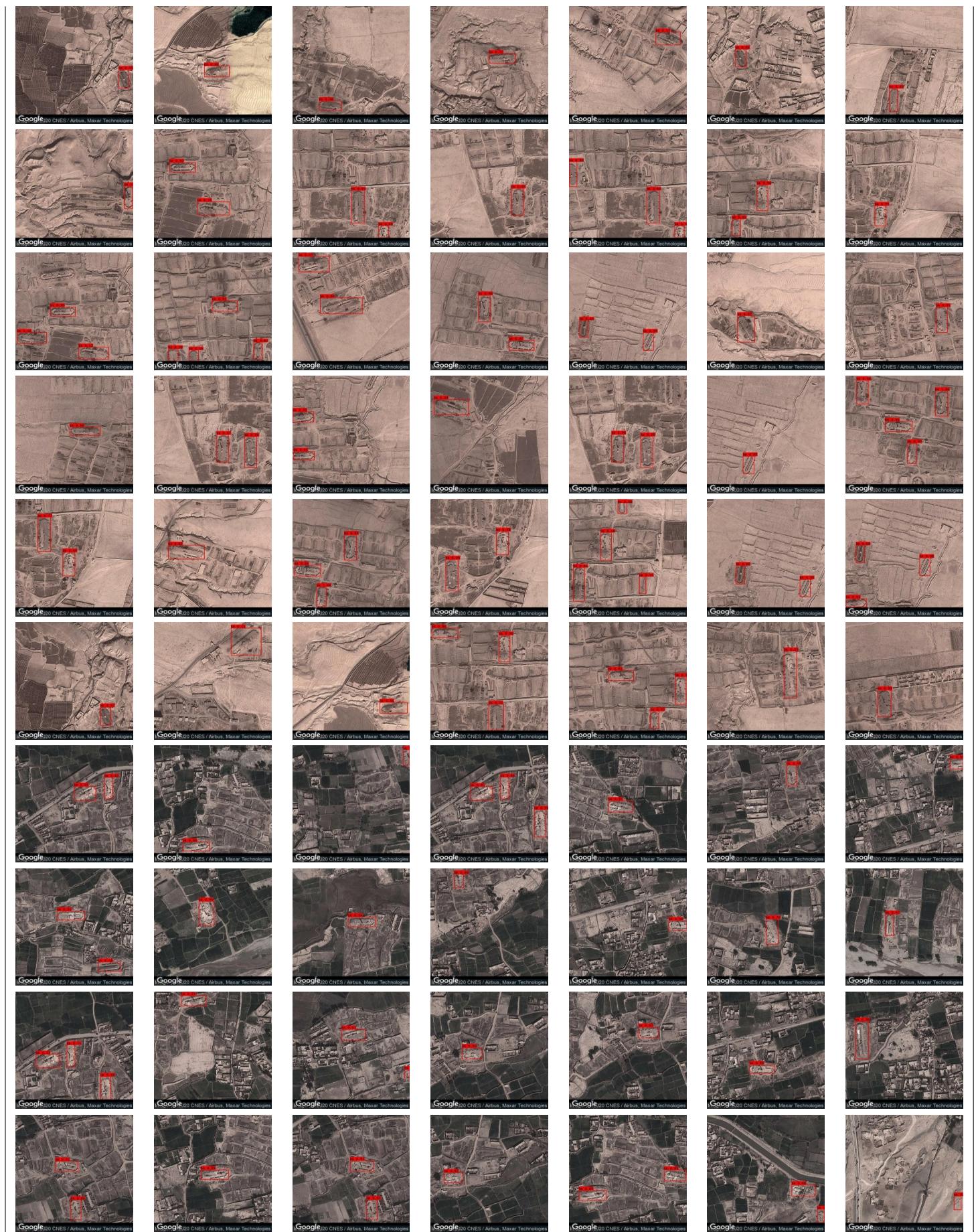


Fig. 1: Examples of Training Dataset. (Satellite images courtesy Google Earth)



**Evaluation Results on cities (Deh Sabz and Surkh Rod) of Afghanistan. (Satellite images courtesy Google Earth)**

Fig. 2: Results of our Proposed Kiln-Net on Afghanistan.



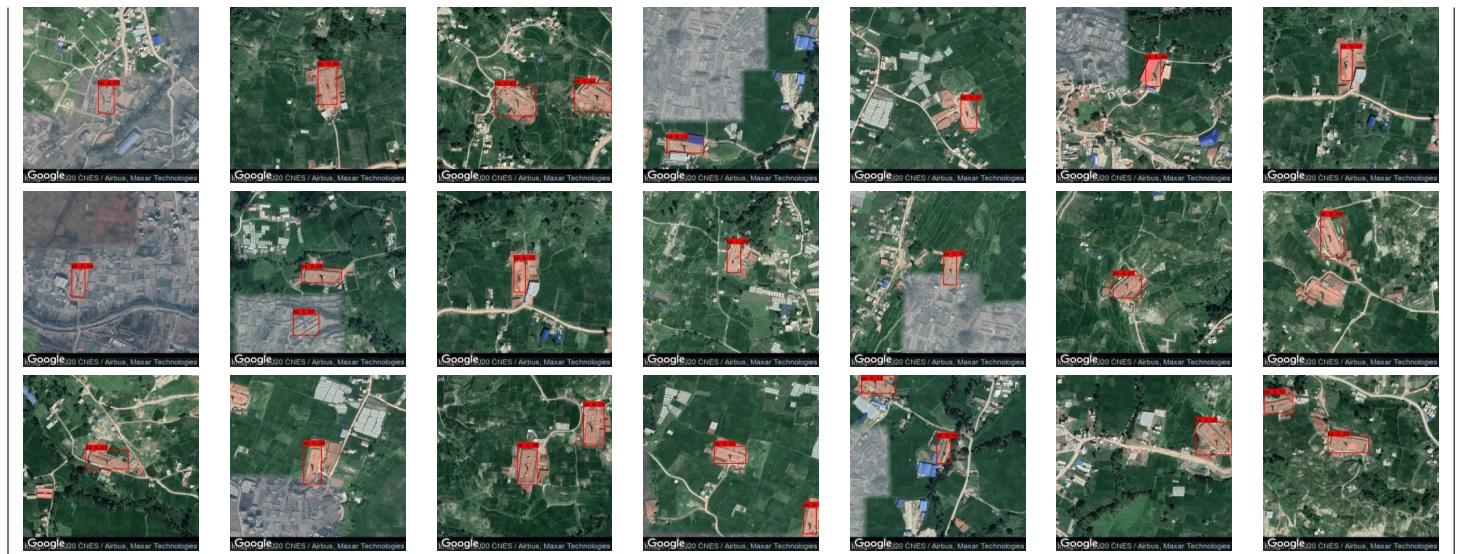
**Evaluation Results on Cities (Kasur, Multan, Faisalabad and Mirpurkhas) of Pakistan. (Satellite images courtesy Google Earth)**

Fig. 3: Results of our Proposed Kiln-Net on Pakistan.

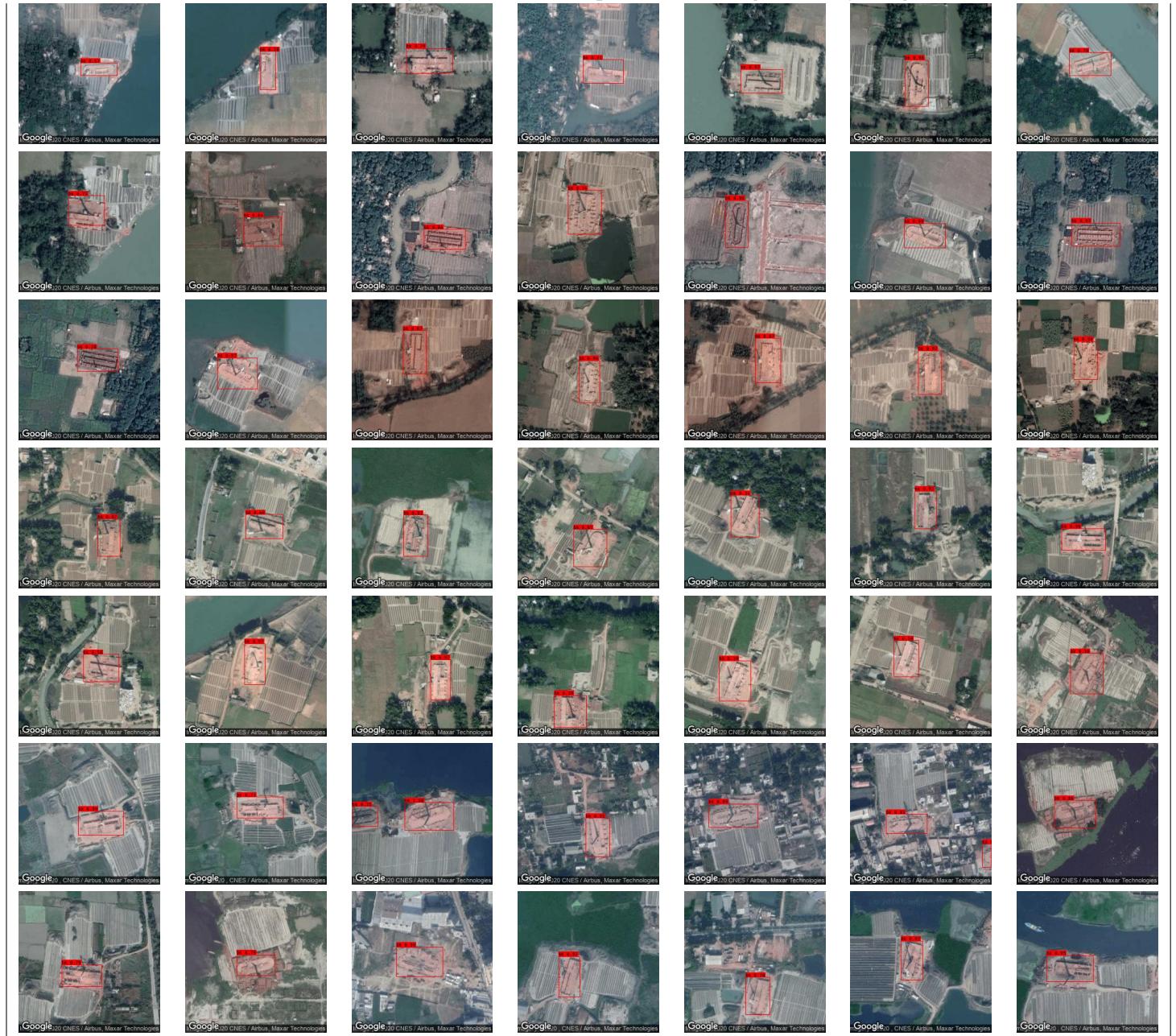


**Evaluation Results on cities (New Delhi, Perumbedu, Uttar Pardesh and Tamil Nadu) of India. (Satellite images courtesy Google Earth)**

Fig. 4: Results of our Proposed Kiln-Net on India.



**Evaluation Results on city (Kathmandu) of Nepal. (Satellite images courtesy Google Earth)**



**Evaluation Results on cities (Barisal, Sylhet and Dhaka) Bangladesh. (Satellite images courtesy Google Earth)**

Fig. 5: Results of our Proposed Kiln-Net on Nepal and Bangladesh.