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Ref.: Brief Appraisal Report on the Replacement of the Infra-Red Multispectral Scanner (IRMSS) by a New Panchromatic Sensor with 2.5 m of Spatial Resolution in the China-Brazil Earth Resources Satellite 2B (CBERS 2B).

Dear Dr. Vianeí,

Upon basis of an open discussion amongst members of the Urban Studies Team of this Division (DSR), the insertion of a new panchromatic camera in the CBERS 2B is regarded as a positive achievement. High spatial resolution sensors, either multispectral or panchromatic, offer a wide range of applications in research related to urban issues, such as:

- detection/prediction of urban geological risks, like landslides and erosion within urban perimeters;
- assessment of progressive soil impermeabilization, what supports studies of urban drainage and floods;
- classification of urban land use and land cover and identification of urban land use and land cover change;
- detection of urban fringe expansion;
- monitoring of unoccupied urban areas, what will subsidize public actions tackling real state speculation;
- inference of urban population densities;
- monitoring of urban land parcelling processes taking place in the outskirts of urban centers, what will meet the needs of urban management initiatives as well as of dynamic models simulating urban land use change;
- identification of areas undergoing densification processes, what will support research on the urban heat islands phenomenon, and so forth.

It is worthy mentioning that although high spatial resolution sensors are not the most suitable tools for detecting urban flooded areas, they can serve as ancillary data for predicting floods, since they are able to assess urban soil impermeabilization processes. On the other hand, urban flooded areas are easily detectable with the near infrared (NIR) band, what is already available in the Charge Coupled Device (CCD) camera of CBERS 2B.

The importance of high spatial resolution sensors for urban applications is necessary in developing countries mainly due to the governmental needs of tracking informal real state undertakings, what can be rather costly and financially disadvantageous if accomplished by aerophotogrammetric surveys.

Finally, the members of the Urban Studies Team of DSR acknowledge that the loss of spectral information deriving from the replacement of the IRMSS by this panchromatic camera is counterbalanced by the gain in spatial resolution. The team members, however, recognize that the insertion of this panchromatic camera is only justifiable if the further development of high spatial resolution sensors is legitimately foreseen within the CBERS Program. Otherwise, this new camera trial is purposeless, since it is not linked to long-term goals of the program.

The team members also recognize that all the impacts of this new panchromatic camera in the functioning of the other CBERS 2B sensors as well as in the satellite technical configurations rearrangements should be duly and carefully taken into account by the entrusted technical personnel.

Sincerely,

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