• Agricultural land availability declined at 0.26 percent annually between 1976 and 2010, including a sharp acceleration to 0.45 percent in the previous decade • These new reliable estimates need to enter policymaking, which until now has widely used a 1-percent approximation • The decline was mainly in cropland switched over to rural settlement • Strategic actions are needed to ensure future food security

Shrinking availability of agricultural land in Bangladesh: New evidence

Reduction in the availability of agricultural land can raise concerns for food security. Land is an input in food production and a source of household income, thus influencing both food availability and access. Over four-fifths of Bangladesh's land is still under agriculture – including cropland, forests, water bodies, aquaculture and tea estates – which is amongst the highest rates globally. Continued de-agrarianisation, planned in the Government's Vision 2021, will further shift agricultural land to other uses for national development, but the process needs careful management to ensure that this scarce resource is optimally used. Raising the productivity of the available agricultural land, and better land management from competing priorities, would help protect food security.

How much agricultural land has been lost?

Land-use data in Bangladesh are based on periodic agricultural censuses, sample surveys and sample aerial photographs. None of these, however, cover all land uses and so any snapshot must be constructed from different data and interpolations. Land records are undigitised, often outdated and inaccurate. A recent study has addressed this empirical challenge by analysing satellite images, and triangulating this information with ground-truthing surveys and existing data. The study provides new and scientifically rigorous land use data for 1976, 2000 and 2010.

Figure 1 shows that agriculture still dominates land use in Bangladesh at 8.8 million hectares. However, this figure has declined steadily since 1976, and markedly so after 2000. Cropland declined by 1 million hectares since 1976, whilst an equivalent area was put to rural and urban settlements and industry. Non-crop agricultural uses slightly declined too. Taken together, land used for agriculture declined at 0.26 percent annually between 1976 and 2010. The rate of decline was faster after 2000 at 0.45 percent, compared to before 2000 at 0.18 percent.

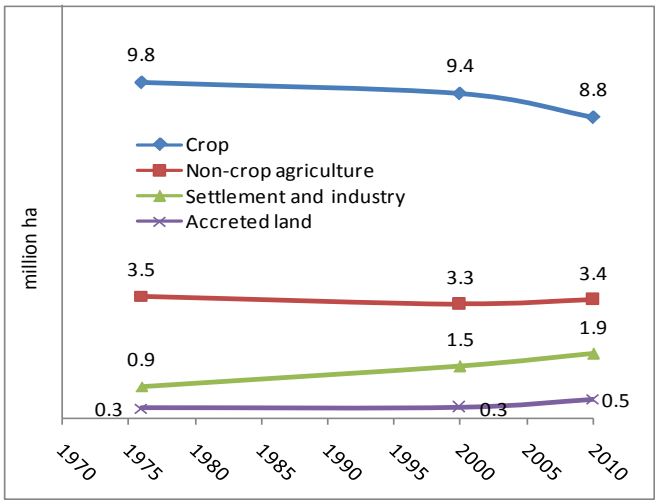

Figure 1: Land availability in Bangladesh
Note: Hasan *et. al.* 2013

Food security through productivity gains

Factoring in population growth, Bangladesh's agricultural land shrank from 186 hectares per thousand people in 1976 to 81 in 2010 – and cropland shrank from 137 to just 58. Such massive reductions in land availability might have jeopardised food security, but productivity gains more than compensated for the loss. For example, since 1976, even whilst cropland per person declined annually by 2.5 percent, crop production per person increased annually at 1.2 percent in tonnage and 1.1

NFPCSP

This policy brief was prepared by the Food Planning and Monitoring Unit (FPMU) of the Ministry of Food of the Government of Bangladesh, with the assistance of the National Food Policy Capacity Strengthening Programme (NFPCSP).
The NFPCSP is jointly implemented by the FPMU and the Food and Agriculture Organization of the United Nations (FAO).

percent in real value, which meant increased food availability and agricultural income per hectare.

Decentralised and locally-informed planning could further boost productivity by exploiting variations across the country. Different places face different land pressures. Annual rates of decline of agricultural land between 1976 and 2010 ranged from 0.52 to just 0.02 percent across divisions. The contrast between Khulna and Kushtia districts, both within Khulna Division, illustrates the potential for locally-informed planning amidst diversity. Kushtia's area is only a quarter of Khulna's, and yet its crop production is 1.6 times as large. Land loss in Kushtia would on average have six times the impact on crop production as in Khulna. Kushtia manages a cropping intensity of 256 percent and irrigation coverage of 73 percent, compared to Khulna's at just 134 percent and 37 percent, respectively. Bangladesh has officially 30 agro-ecological zones. Decentralised information on the qualitative composition and conservation of land, as well as the diverse pressures on it, should be part of agricultural land management.

Competing national priorities

Figure 2 shows pressures on land use that need consideration in national planning. This suggests the importance of multisectoral approaches in land management to resolve competing claims.

- Forests, including mangrove forests, declined massively with implications inter alia for the country's climate change adaptation goals.
- The huge increase in accreted land in coastal and river systems, equivalent to 0.3 times lost cropland, offers agricultural potential but faces fragile agro-ecology, livelihoods, and land rights.
- Land went overwhelmingly to rural settlement, which dwarfed urban and industrial gains by 14 times. However, even though the population doubled since 1976, the density of rural settlement in Bangladesh remained unchanged, ranging from 22 hectares per thousand people in Sylhet division to just 9 in Khulna, which provides considerable scope for housing policy.
- Urbanisation and industry have made relatively modest demands on land. Urbanisation however seems partly driven by land availability – for example in western divisions, greater rural-to-urban migration coincided with greater agricultural land decline between 2000 and 2010 (1.6 times and 1.4 times, respectively, relative to eastern divisions).

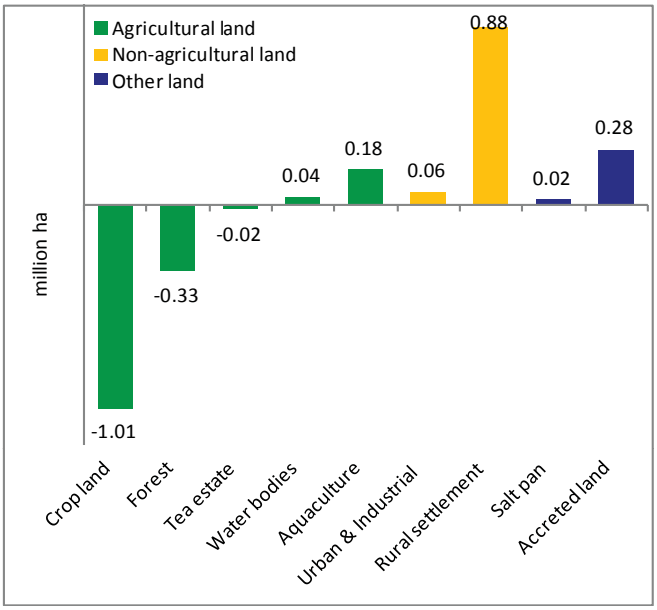

Figure 2: Land gains and losses, 1976-2010
Note: Hasan *et. al.* 2013

Recent developments and policy gaps

Several existing policies and plans, including on food, agriculture, climate change adaptation and development of the southern delta, if successfully implemented, would help protect food security, use accreted land more effectively and support de-agrarianisation through greater agricultural productivity.

The Government intends to develop an Agricultural Land Protection and Land Use Act, and to prepare a roadmap to bring land use under a single authority, which are steps in the right direction. For any land use policy to have impact, deep partnerships and commitments from stakeholders with diverse interests, need to be accelerated. Policy gaps in rural housing should be considered in the National Five Year Plans. The idea of "compact rural townships", mentioned in the National Sustainable Development Strategy 2010-21, needs urgent elaboration to slow the huge horizontal expansion of rural settlement●

Key sources: • Bangladesh Bureau of Statistics, Yearbook of Agricultural Statistics 2011 and Statistical Yearbook 1984/85 and 2011 • FAOSTAT http://faostat.fao.org/ (accessed July and August 2014) • Hasan, N. *et. al.*, 2013, Trends in the Availability of Agricultural Land in Bangladesh, NFPCSP • Hossain, Z. *et. al.*, 2013, Rural-urban Migration in Bangladesh, NFPCSP.

The NFPCSP is financially supported by the United States Agency for International Development (USAID) and the European Union (EU).
The opinions expressed in this policy brief do not necessarily reflect those of the Government of Bangladesh, FAO, USAID or EU.
For further information and comments: www.nfpcsp.org, Food Planning and Monitoring Unit (FPMU), Ministry of Food, Khaddya Bhaban (Ground floor), 16 Abdul Ghani Road, Dhaka-1000, Bangladesh.