

Public Consultation on The New Agricultural Policy: Sustainable Agricultural Development in Hong Kong

Dear Agriculture Branch

Thank you for inviting comments to The New Agriculture Policy.

Foremost I welcome the basic notion of the policy draft to reinvigorate the agricultural sector in Hong Kong.

From my research in urban farming I see a lot of potential in increasing productivity of organic foods, biowaste management, and ecological services (carbon trapping) through a holistic cultivation approach that sensibly integrates all these elements.

The policy draft describes plans for the development of infrastructure in the Agri-Park including sewerage, power supply and an In-Vessel composting treatment facility for food and biomass recycling. This is not explained in much detail.

If the new policy wants to establish synergies and optimize ecological performance at the heart of the Agro-Park (its utilities), then I suggest to consider the production of clean, high-temperature charcoal dust (biochar). The durability and super-porous microstructure make biochar a long-term storage medium for the soil's microbe life, plant nutrients and moisture. Soils amended with biochar have proven to be very resilient to weather extremes and nutrients fluctuation. The extraordinary vitality of biochar-enhanced soils provides outstanding fertility and climate change mitigation (Lehmann, 2009).

The feedstock for biochar production comes from dried organic waste from agriculture (husks), animal husbandry, food production, sawmills (saw dust), forestry (clippings) and construction (wood debris) – resources that normally are incinerated and dumped into landfills or water bodies. With a hydrothermic pyrolysis system in place (for example Pyrech biogas kiln or Schottdorf biochar reactor) it is economically viable to convert large amounts of biowaste not only into prime soil amendment, but also produce electricity and hot water supply for homes and industries of an entire village.

In the larger context, biochar is part of a closed-cycle resource management system called Terra Preta ('black earths') that integrates sanitation, biomass reuse, soil revitalisation and water protection

(Otterpohl, Reckin, Pieplow, 2010). This ancient, recently rediscovered, cultivation method relies on the two-stage process of lactobacilli fermentation and vermicomposting. Contrary to regular composting, Terra Preta is fermentation-based and minimizes the 'wild decomposing' of organic matter (destructive rotting), which eliminates malodors and curbs potent greenhouse gases like methane. The addition of charcoal dust and lacto-acid bacteria allow for a conversion without air exchange that efficiently eliminates pathogens (GS Itchon et al, 2010) while stabilizing nutrients into a form that caters well to the metabolism of plants (Reckin, 2010).

Thank your for considering this comment. If this is of interest to you, I am happy to discuss this further.

Here are more online resources:

<http://www.biochar-international.org>

http://en.wikipedia.org/wiki/Terra_preta

Sincerely,
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