

Agroecology case study #1: Teaching agroecology: new methods for new concepts

[for PAN UK webpage Alternatives/Agroecology in developing countries]

This case study is based on a presentation by Dr Parthiba Basu of Calcutta University made at the Centre for Agroecology, Water and Resilience at University of Coventry, UK, in June 2016. More information on Calcutta University's Centre for Agroecology & Pollination Studies, including the Masters course in Agroecology described here, is available via www.cpescu.in

Background: The Centre for Agroecology & Pollination Studies was set up in 2012 by Dr Parthiba Basu, Head of Zoology at Calcutta University. It aims to expand knowledge of the role of pollinators in India and of the threats to them from habitat loss, pesticide impacts and other stress factors. The Centre also carries out practical work to encourage farming methods that are pollinator-friendly. Dr Basu and his team recognised that an important contribution they could make to shift Indian agriculture to more sustainable methods was to train university students in ecological approaches and the principles of agroecology. The six month Masters level course on agroecology was established as a result, supported partly by the Government of India. This pioneering course is the first in the country at academic level but in order to empower students to implement agroecology, it was clear that new learning methods were needed. In this article, Dr Basu shares his experiences on addressing this challenge.

Rethinking conventional university teaching: Dr Basu admits that he used to be a traditional 'chalk and talk' teacher for over 20 years until he met educationalists from the Norwegian Life Sciences University who introduced him to the concept of participatory learning. This concept focuses on how students can be active agents of change and not only passive recipients of 'knowledge'. The new agroecology course developed in the context of a long tradition in India of very diverse organic approaches in farming, accompanied by more recent and rapidly rising activism around agroecology as a movement for political change. Dr Basu realised that conventional university training methods would not work if the goal was to turn students 'from agroecology into agroecologists.' Many of his fellow university lecturers felt unsure about this and the course development has been as much a learning and reflection process for teaching staff as for the students.

A focus of the course has been for the university to play a facilitating role, providing a space for dialogue between the overlapping circles of formal research and teaching, with the experiences and knowledge of multiple stakeholders (farmers, consumers and others) in the real world beyond the campus. It has not been easy to start putting a reflective learning cycle along with action research into the formal student curriculum or the institutional ethos of the university. The course team has addressed this by using participatory methods, beginning with self-evaluation exercises, and providing opportunities for students to learn about farming through direct experience. This involves: observation in the field; explanatory walks; and practical exposure to agroecological farming activities throughout the year and not just at convenient times during the student term.

A living and learning process for students: The core element of the course is for students to spend ten days living and working with a village farmer group in the Community-Managed

Sustainable Agriculture (CMSA) movement, which has pioneered ecological farming methods with thousands of small, family farmers since 2004¹. On their return, they carry out a visioning exercise, in dialogue with their farm family host, on how they could better integrate agroecological methods or an improved whole farm design into the farm's practice. The course work also involves agroecological design activities with larger farms, for example, on consumer issues or ways to reduce the carbon footprint of production. The students jointly make use of the results from the visioning exercises and reflection sessions and turn these into practical outreach guidance, tools or communication messages.

Turning agroecological theory into practice from farm to fork: A concern raised by students and some staff in the first year of running the course was how they could possibly learn or convey all the methods in agroecology in just six months. Of course, this is impossible so the course aims for students to understand the principles and to make links with people who can guide and advise on particular aspects. The learning process therefore involves active student peer review of their own essays and project work, through presentations and social media, e.g. blog creations. Practical activities include a food trading exercise in urban markets where students ask stall holders where the food was grown, by whom and under what kind of production system. Students also set up their own self-study groups to explore issues such as the pros and cons of GM crops, what climate change means at farm or village level (e.g. whose climate and whose change?). The university team is now putting more emphasis on gender issues and land rights.

In the final week of the course, the students organise an open day Festival of Food and Ecology on campus for the public, in which they can showcase positive examples and encourage consumers to think about their food buying decisions.

The Centre for Pollination Studies has received very positive feedback on its agroecology course from students, staff and farmers. There is now interest from other academic institutes, with Kerala State University planning to take up parts of the course in its own programme.

Related reading on pesticide effects on Indian pollinators: During Parthiba's Darwin Fellowship study visit to the UK in 2016, he spent two days on an experience exchange on non-chemical pest management methods with PAN UK. He described his team's recent research findings on pesticide effects on Indian native honey bees. Read more about Calcutta University's pioneering ecotoxicological studies in eastern Indian agroecosystems and their farmer participatory research on pollinator impacts in the briefings on PAN UK's website via *[need to upload from web archive or ask me]*

Notes

1. See case study 6.1 in *Replacing Chemicals with Biology: Phasing out highly hazardous pesticides with agroecology*. PAN International, 2015, pp.94-99. Via: <http://www.pan-uk.org/agroecology/>