

Delta Session DS 9: The lowland deltas of Indonesia

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The coastal and near coastal lowlands of Indonesia (approximately 21 million ha) are rural deltas with unique eco-physical and socio-ecological qualities. Their soils often consist of thick layers of peat and demand to be carefully managed. Their indigenous inhabitants have developed unique livelihood systems based on the potential of the areas' natural resources. Starting a few decades ago, Indonesia's lowland deltas have become the scene of increasingly intensive economic activities, led by people from outside in search of opportunities to benefit from the areas' natural resources. They have removed the forest cover and have lowered water levels in order to use the peat soils for food and energy crops. This has resulted in the peat to be exposed, which allows it to oxidize. In the process large quantities of CO₂ and other Green House Gases are released. The scale at which this happens is such that the lowlands of Indonesia contribute importantly to the global emissions of Green House Gases, and thus to global warming.

On top of this climate change affects the lowland deltas (although how exactly and to what extent is not certain). Sea levels rise, salt water intrudes further inland, prolonged droughts occur, or floods become more frequent. The indigenous livelihood systems have to adapt to these changes. Ecosystems may change also because of changes of local climatological conditions, again forcing people to adapt their livelihood systems. On the other hand, the global concern with climate change may create opportunities, as – internationally agreed – measures to prevent more CO₂ to be released in the atmosphere may become financially beneficial.

The parallel session on Indonesia's rural deltas was organized around 4 presentations, followed by discussions on propositions between a panel and visitors to the session. The presentations introduced different aspects of Indonesia's rural deltas today and of the role of climate change. Each presentation was concluded by a proposition. The panel addressed each of the propositions, which triggered reactions from the visitors to the session. The session was chaired by dr. A. Schrevel, Alterra, Wageningen UR.

The session on rural deltas in Indonesia took off with an introduction by Ing. J. Houterman, Euroconsult MottMacDonald. He explained the practice and policies of rural delta development in Indonesia and gave an overview of the different phases of lowland development. An important conclusion drawn by Houterman is that each rural delta is unique in as far as its bio-physical and eco-social conditions is concerned. He also made clear that understanding the actual potential of sub-areas within deltas is a first condition to successfully strike a balance between conservation and development. Hydrology is a key to that understanding. Rural deltas are invariably difficult to develop, with a high risk of failure. Failure will lead to unsuccessful agricultural projects and degraded lands. Climate changes challenges include fire-risks, the need to adapt established agricultural practices, and changes in coastal ecosystems.

Prof. Jan Sopaheluwakan (Chairman ICIAR-LIPI zoomed in on the case of the Mahakam Delta, East Kalimantan and explained how delta development takes place in practice. Referring to the Mahakam delta, his conclusions are straightforward: the delta's natural resources are scavenged and current practices boil down to 'harvesting disasters'. The case of the Mahakam delta is not unique in Indonesia. He also remarked that climate change is but one of factors at work that shape the rural deltas, and not necessarily the most important where it concerns sustainable ecosystems and livelihoods.

Doing the hydrology right is of crucial importance for many reasons, including effectively managing carbon dioxide (CO₂) emissions. The levels of CO₂ emissions from Indonesia's rural deltas are felt even on a global scale; the deltas contribute directly to increased levels of CO₂ in the atmosphere, and therefore to

global warming. Dr. Henk Wösten, senior researcher at Alterra, Wageningen UR, discussed the potential to mitigate CO₂ emissions by restoring degraded peat lands through optimizing hydrological conditions. He presented his experiences in a recent REDD (Reduced emissions from Deforestation and Degradation) scheme in Central Kalimantan. He observed that ‘the more you drain, the more emissions you get’. Pertinent questions include: ‘Who owns the carbon stocks?’, and ‘How to monitor the carbon stock and its growth correctly?’. The latter point has a bearing on the Measurement, Reporting and Verification (MRV) elements of the VCS (Voluntary Carbon Standard). He made it clear that REDD could help securing the economic and ecological stability of peat lands. REDD also is a tool to deal with factors that generate climate change.

The fourth speaker was Msc. T. Bresser, from UNECCO-EHE. He also made the point that climate change comes on top of other developments (e.g. changes in land use, infrastructure). He further made it clear that still a lot of uncertainty surrounds climate change and how it affects Indonesia’s rural deltas. There is especially a lot of uncertainty with respect to rainfall in the future, and the onset of the rainy season is expected to be delayed and its length diminishing. Combined with increased rainfall this means more intensive rainfall in a shorter period. His proposition was that the consequences of climate change for planning would lead to only slightly higher costs, but that the main bottleneck was institutional capacity to effectively deal with climate change at local and provincial levels.

The panel members (dr. W. Giesen, EC Mott MacDonald; dr. Heru Santoso, ICIAR-LIPI; and dr. Jan Verhagen, PRI, Wageningen UR) discussed different aspects of climate change in Indonesia’s rural deltas and reacted on comments from the public.

It was said that we have to deal with the limits and uncertainties associated with climate change, but that at the same time we have to start science and policy dialogues so that policies become acceptable, because we cannot afford to wait till all uncertainties have been turned into certainties. Scenario thinking and thinking about extreme conditions is the way out of this dilemma. The need to translate conclusions to local levels and to introduce approaches that are effective even after projects have come to an end was also stressed. It was further stressed that an ecosystem approach could link conservation to development aspects (e.g. DPSIR framework). Furthermore, everyone agreed with the notion that doing things right now means that costs in the future will be avoided, which is indeed an important consideration. And that relying only on the government is perhaps not sufficient; the private sector needs to be involved also. Educating stakeholders, including government officials is important. With regard to REDD, the point was made that making funds generated through a REDD deal available at local level is a very complex issue, and there are not standard approaches, because ‘carbon ownership’ patterns differs from one area to the next and have much to do with local access-to-resources patterns. It was also said that REDD deals tend to be made at national level, not local level, and that price setting is particularly important as this directly relates to the potential to achieve results on the ground. Finally, effectively linking national policies to provincial and district policies, while allowing things to be done at the lowest appropriate level, is a major challenge in Indonesia’s rural deltas today. Plus getting rural deltas on the agenda of policy makers.