# Paludiculture and improved fire management as a key towards sustainable shifting cultivation practices on peatlands

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**ABSTRACT –** Historically, in South East Asia, indigenous crops have relied on tropical peatlands for the subsistence of local communities. Within these systems fires were an integral part for land clearing and soil fertility management. Gradually these systems have evolved into complex agroforestry systems through the interplanting of perennial crops like rubber. Within these systems fire continued to play a key role. These systems enabled smallholders to adjust livelihoods and in addition tropical peat ecosystem services, continue to provide critical ecosystem services. However modern technology enabled communities and governments to open deep peatlands. The consequent drainage caused an increased risk of peat wildfires, which lead to the major fire disasters of the 20th early 21st century, culminating in 2015. Given the reliance on fires, it is argued that better regulated use of fire is essential to ensure that smallholders can meet their livelihood needs. Considering the externalities of fire used by the communities and other landscape actors, through promoting of swamp agriculture, economically viable fire free livelihoods options do exist. However, for the time being, regulated use of fire is a first step towards a gradual transition of sustainable swidden agricultural systems. Shifting cultivation or swidden agriculture on tropical peat remains a controversial issue as it has been identified as a major cause of catastrophic fires. The use of fire has been an historically integrated element of livelihoods on peat lands of Indonesia and globally (like the Congo basin), but dramatic environmental change brought by mechanically dug drainage has created a completely new landscape of degraded peat with a fundamentally altered fuel dynamic and thus risks in terms of fire use leading to dramatic externalities in terms of health economic and climate impacts. The challenge to align livelihood needs, and global environment concerns are pressing while introducing technology based and institutional innovation to ensure a sustainable future for the millions of people depending on shifting cultivation on peat. It demands building on the adaptive capacity of communities which can be enriched with new commodities embedded in a REDD+ based compensation scheme that compensates villagers and build on existing complex agroforestry systems.

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