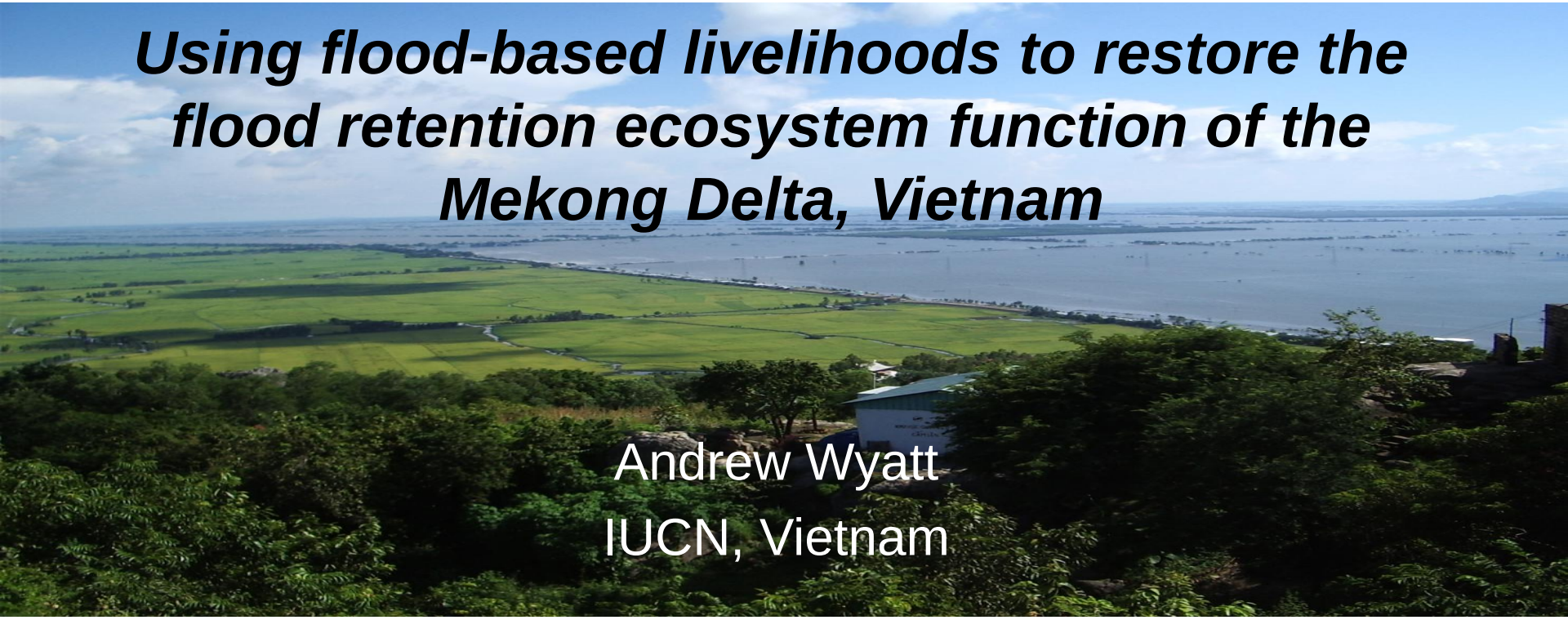


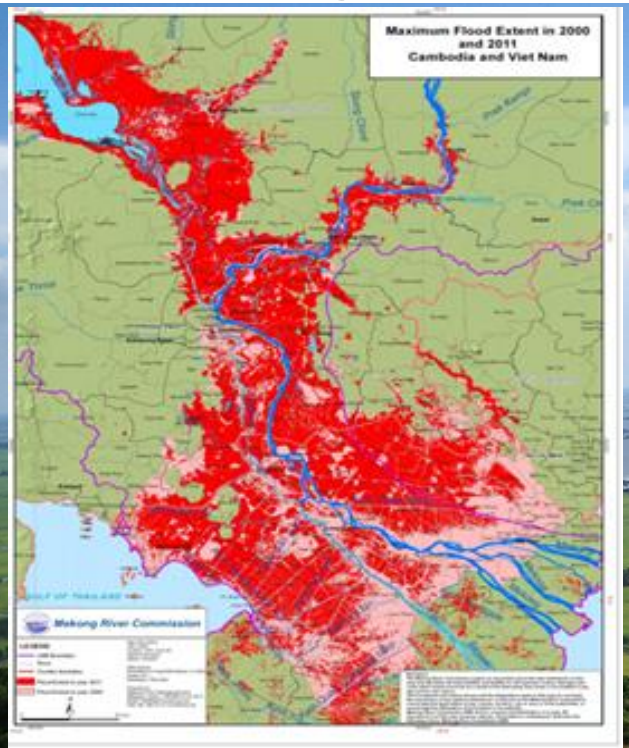
Using flood-based livelihoods to restore the flood retention ecosystem function of the Mekong Delta, Vietnam

Andrew Wyatt
IUCN, Vietnam

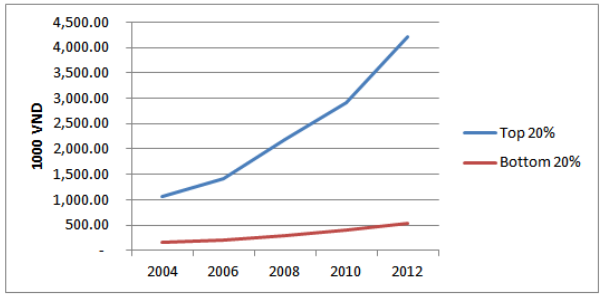
Declining Resilience in the Mekong Delta from the third rice crop

Between 2000 and 2011, the total flood storage volume in the upper Delta has halved, from 9,200 billion m^3 to 4,700 billion, m^3 as a result of the 3rd rice crop

Declining Resilience in the Mekong Delta



The growing gap in monthly incomes in the Mekong Delta (Source: GSO, 2014).



Vỡ đê xã Vĩnh Trung, H.Tịnh Biên, An Giang, 2011
Nguồn: Báo Thanh Niên (9/2011)

- Between 3 and 11 million USD in additional flood damages in Can Tho City in 2011 flood (ICEM, 2015)
- Lost fisheries value approximately $1,000 USD/ha/yr (Tong, 2015)
- US$15 million/yr free fertilisation lost (Chapman and Tri, 2016)
- Subsidence of 5 - 10 mm/yr (Erban *et al*, 2014, Minderhoud *et al*, 2017)
- Increasing accumulation of POPs (USGS, 2013)
- Increasing social inequality (MARD, 2016)

Flood-based agriculture as a nature-based solution to profit from the floods

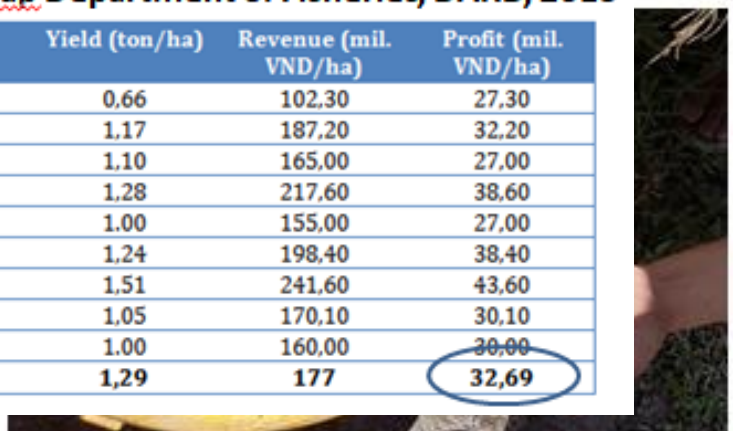
Rice-Aquaculture

Rice Profits. Data: Thap Muoi District DARD, 2015

	Unit	First crop	Second crop	Third crop
Total investment cost	VND/ha/year	21,520,810	24,376,850	21,830,540
Yield	Kg/ha	7,200	6,200	5,400
Selling price	VND/Kg	5,500	5,400	6,000
Total revenue	VND/ha/year	39,600,000	33,480,000	32,400,000
Profit	**VND/ha/year**	**18,079,190**	**9,103,150**	**10,569,460**

Giant Freshwater Prawn Profits. Data: Dong Thap Department of Fisheries, DARD, 2015

No	District	Selling Price (VND/kg)	Total cost (mil. VND)	Yield (ton/ha)	Revenue (mil. VND/ha)	Profit (mil. VND/ha)
1	Tan Hong	113.636	75	0,66	102,30	27,30
2	Hong Ngu town	132.479	155	1,17	187,20	32,20
3	Hong Ngu district	125.455	138	1,10	165,00	27,00
4	Tam Nong	139.844	179	1,28	217,60	38,60
5	Thanh Binh	128.000	128	1.00	155,00	27,00
6	Cao Lanh	129.032	160	1,24	198,40	38,40
7	Lap Vo	131.126	198	1,51	241,60	43,60
8	Lai Vung	133.333	140	1,05	170,10	30,10
10	Thap Muoi	130.000	130	1.00	160,00	30,00
	Average	**129.212**	**145**	**1,29**	**177**	**32,69**



Flood-based agriculture as a nature-based solution to restore the flood-plain ecosystem

- Nature-based:
  - ✓ Reduced infrastructure costs – no need for high dykes or large-scale drainage canals
  - ✓ Flood-plain ecosystem conserved and restored while farmers profit from the floods

Table 2. Flood retention capacity of lotus vs. intensive rice (Ni, D.V., *et al.* 2016)

	Triple rice	Lotus-fish	Intensive lotus + tourism
Lowest water level (cm)	0	5	5
Highest water level (cm)	15	150	150
Estimated flood retention (m^3 per 1,000 m^2)	700	1,500	1,500

Challenges

- ❑ Policy support -> National Resolution 120
- ❑ Technical support for farmers
- ❑ Markets
  - ✓ Further diversification of the flood-season crops
  - ✓ Developing value chain
  - ✓ Access to international markets
- ❑ Reliable drought and flood early-warning systems need to be developed so farmers are able to decide on alternatives if low floods are expected.
- ❑ Dike modifications: What sorts of dykes and water control is required to optimize production?