

Review of: "The Consequences of Political and Economic Choices: Exploring Disaster Vulnerability with the Structure, Resource, and Behaviour Change model (SRAB)"

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Potential competing interests: No potential competing interests to declare.

I will confess at the outset that I am a natural scientist, not a social scientist. Thus, I was expecting this paper to follow what I regard as the standard structure for a research paper of Introduction, Methods, Results, and Discussion. I was confused by the presentation of Methods and Results in the Introduction, Results section that was labeled Data and Methods, and by what seemed to be the main result stated in the Introduction (page 8, "We argue that the contemporary disaster vulnerability in the Vietnamese Mekong Delta is the outcome of Vietnam's political choice of food security and economic choice of rice crop intensification.").

I also found the theory of change to be problematic. The model that was presented, Structure, Resource, and Behaviour Changes (SRAB), I understood to have been developed by the authors, based on the PAR model from the literature (Wisner et al. 2004; Blaike et al. 1994) and as presented in Fig. 1, to lack recognition of social adaptation and feedback. I could not extract from the paper a clear understanding of the progression over time of infrastructure development (flood control and irrigation), the introduction of short season rice varieties (i.e., 3 season rice culture), and adoption by farmers of the third crop. I question whether farmers were responding to market forces and the new irrigation infrastructure, or if farmers were coerced by the government to plant the new variety, which was followed by the government building the new irrigation capability.

The vulnerability of the farmers seemed to be taken as a given, without much supporting evidence except that they suffered losses when extended drought, below average precipitation, and saltwater intrusion occurred. Much was made of changes in farmers' perception of risk, but I question if this is the correct interpretation. It seems to me that they perceived the risk, but their attitude changed to be less averse because of the irrigation development and their calculation of risk/reward changed accordingly. Was this why they didn't choose the alternative rice/prawn culture? Would adopting rice/prawn culture instead of 3-rice have protected them from saltwater intrusion? Hopefully the authors have some data from their interviews to address some of my concerns.

Here are some more targeted comments.

Page 3, "the current risky rice crop 3" this needs a little definition/introduction here.

Page 3, "a lack of effective long-term hydro-meteorological uncertainties" This doesn't make sense. Should it say hydro-

meteorological **certainty**?

Page 4-5, paragraph beginning with “This section aims to contribute to” could be condensed

Page 7, perhaps a graphic of the PAR model and how it relates to the S-RAB model? Is the Triangle of Vulnerability the same thing as the PAR model?

Page 7, Figure 1, Is reproduce/change the same thing as adaptation?

Page 8, “question of what has made Vietnamese farmers so vulnerable to the risks of drought and saline intrusion in the current timeframe. “ Is this the research question? Don’t you have to first establish that they are in fact vulnerable, and that drought and saline intrusion have occurred?

Page 8, “We argue that the contemporary disaster vulnerability in the Vietnamese Mekong Delta is the outcome of Vietnam’s political choice of food security and economic choice of rice crop intensification.” This sounds like you started with the answer and then set out to prove it.

Page 10, “middle-in-land” Should this be middle inland? I understand that it refers to an area that is just inland from the coast.

Page 10, What is the difference between “agricultural land” and “rice cultivation land”?

Page 10, “third rice crop” A little more information early in the paper on rice cropping in this context would be helpful for readers who are not familiar with Vietnam.

Page 10, “highest saline concentrations in river” Is this a single point in time sample or integrated average over a day or another time period?

Page 14, “Documentation is the technique of dealing with numerous types of documents relevant to the topic of interest (Yin, 2014).” This seems pretty self-evident; does it really need to be said?

Page 14, “my study”, Who is “my” here? Wouldn’t it be better to just cite the thesis?

Page 15, Tables 1 and 2 aren’t needed here, but could be kept as an addendum or supplement.

Page 16, “commune’s percentage of agricultural land and rice cultivation land area in its total land area were 90.5 percent and 77.8 percent” is confusing; if they are separate land use categories, they shouldn’t add up to more than 100%. If they aren’t separate, what are you trying to say? One interpretation is that 90.5% of the commune’s land is agricultural and of that, 77.8% is devoted to rice cultivation (that would mean that 70.4% of the commune’s total land is devoted to rice).

Page 16, This system implies that farmers cultivate three rice crops a year: crop 1, or Summer-Autumn crop (April to August), crop 2, or Autumn-Winter (September to December), and crop Page 16, “This system implies that farmers cultivate three rice crops a year: crop 1, or Summer-Autumn crop (April to August), crop 2, or Autumn-Winter (September to December), and crop 3, or the late Winter-Spring/ Spring-Summer crop (late December to mid-March). This farming

system is highly vulnerable to saline intrusion and drought because the dry season runs from November to April, with saline intrusion peaking around February to April” This could be better expressed as a graph showing the cropping seasons against the average daily precipitation over say 15-20 years.

Page 17, “This drought condition sharply deteriorated saline intrusion,” Deteriorated is the wrong word here; maybe intensified would be better?

Page 19, “The French colonials brought the first mechanical dredgers to Vietnam, assisting in the establishment of the VMD” This makes it sound like the French engineers created the delta. Don’t you mean that the engineers and their dredgers formed the rice paddies and protecting levees in the VMD, establishing rice cultivation?

Page 20, “ (including de-collectivisation of the economy and agriculture, farmer liberation from cooperatives, transfer of rights over land and production materials to farm households,” There is no end parenthesis here; maybe remove the parenthesis and add a comma?

Page 21, “largest net” This should be “net” as it is an adjective, not a verb.

Page 22, Table 5 does not seem that relevant here; as with other tables, add as a supplement.

Page 23, “was critical in facilitating the transition from single cropping to double and triple cropping (Ut and Kajisa 2006).” This strikes me as critical to the analysis. Did the farmers eagerly adopt the new varieties, responding to market forces, or were they pushed by the government?

Page 24, “To do so, the irrigation development policy’s core idea was to shut down the delta (Miller 2007).” What does this mean, shut down the delta? Cut it off from the river?

Page 24, “This idea began to take shape in late 1970s to mid-1990s and was first realised in Decision no. 99-TTg (1996) on long-term direction and the 1996-2000 plan for irrigation development, transportation, and building rural areas in the VMD.” Was the irrigation development contemporaneous with adoption of new varieties? Which came first, demand for irrigation or supply of irrigation water enabled adoption of third crop? This is partially answered in figure 4, I guess. But your thesis implies that the irrigation came first as it was the government’s policy to develop more rice production.

Page 25, “1) The Long Phu - Tiep Nhat project, constructed in 1993-1994 and 2003-2004, spans 46,094 ha in the Long Phu and Tran De districts of Soc Trang province. 2) The Ba Rinht-Ta Liem project, built in 1993–1994 and 2003, covers an area of 35,492 ha, including My Tu district in Soc Trang province. 3) The Quan Lo–Phung Hiep project, built in 1992, covers an area of 247,222 ha in Bac Lieu and part of Soc Trang (MARD 2020; M.T. Nguyen, Renaud, and Sebesvari 2019). Tan Hung commune is part of the Long Phu - Tiep Nhat system, which has 29 sluice gates and produces 11,313 hectares of triple rice crop, 29,485 hectares of double rice crop, 4,419 hectares of aquatic products, and 877 hectares of forest (MARD 2020).” This would be better if shown on a map or a table.

Page 26, “epic tragedy of 2015-2016 (Miller 2007; Xuan 1975).” Was this the drought/saline intrusion? Non-local readers won’t know.

Page 27, “Agricultural modernisation initiatives have inadvertently erected hurdles that hinder local governments and farmers from escaping the rice production cycle or, more generally, the borders of the agricultural field (World Bank 2017). As a result of the dominance of rice cultivation, farmers were constrained and could rarely earn more than subsistence from rice farming (Bruun 2020a; Coxhead, Linh, and Tam 2012; C. Tran, Do, and Le 2013). In other words, farmers are confronted with a conundrum: they struggled to move to non-rice livelihoods while rice farming barely supported them. Thus, farmers did not limit themselves to the double cropping system (Nguyen-Trung 2019). In pursuit of new revenue, farmers began experimenting with rice crop 3 during this time. According to Berg (Berg, 2002), the availability of inexpensive fossil fuels and the ability to use agrochemicals,” Shouldn’t this be in the Discussion rather than the Results?

Page 30, “farmers’ sense of risk” Seems to me the farmers perception and understanding of the risk of saline intrusion, what changed was their calculation of the benefits; maybe their attitude toward risk became less averse.

Page 32, “voluntary experiment by farmers.” Is this a general statement or only applicable in this locality?

Page 34, “Many farmers have shifted to more eco-friendly models, such as the prawn rice rotational cropping system or the lotus crop and tourism model” In the survey of farmers. Were they asked why they didn’t adopt at least the prawn-rice cropping system? Did they have a choice and made a conscious decision to go to 3 rice crops instead?