

Institutional Change and the Institutional Economics of Environmental Change: Case Studies on the Pesticide Drift Pollution of Banana Plantation Communities in the Philippines

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How does institutional change occur to resolve a pollution problem? This case research explores this question by examining the policy processes on the resolution of pesticide drift pollution at the level of affected villages in Mindanao provinces and at the level of local government in Davao City. Pesticide pollution occurs whenever the pesticides sprayed on the banana plantations, either through airplanes or trucks, drift towards the airspace of nearby residential communities. As a result, pesticide drift chemically contaminates environmental resources of the plantation villagers. The case study employed the research approaches of New Institutional Economics (NIE), Institutional Analysis and Development (IAD) and Institutional Dimensions of Global Environmental Change (IDGEC).

Before answering the question of institutional change, the study answers first two research questions. First, what are the properties of pesticide drift as a pollution externality for plantation communities? GIS survey, interview of plantation villagers and banana companies, and field observation are the research methods used by the study to determine the physical extent, socio-environmental damages and economic benefits of pesticide drift. Based on the three village case studies, GIS survey recorded a maximum extent of 508 meters for aerial spray (AS) drift while community interview showed that 92% of the total 88 respondents from the three villages reported experiencing at least one of the several toxic syndromes of drift exposure due to current AS practice. Social costs of AS drift for plantation residents include environmental pollution, health illnesses and livelihood damages. On other hand, mitigating pesticide drift by banning AS and shifting to ground spray (GS) entails economic losses to banana companies. Hence, the mitigation of AS drift involves conflicts of interests between plantation villagers and plantation companies. Second, how do existing institutions permit pesticide drift pollution? Guided by the IAD framework, the study used documentation and key informant interviewing to identify, classify and illustrate the hierarchy of institutional rules on the mitigation of pesticide pollution. The lacking specification of drift extent by the ECC (Environmental Compliance Certificate) rules on spraying methods, the lacking specification of buffer zones for residential areas, and the deficient specification of buffer distances by the ECC rules on buffer zones for protected environments permit free-riding behavior among companies that leads to pesticide drift pollution. The non-specification and misspecification by the existing institutions of the biophysical limits on the pollution outcomes of banana production lead banana companies to free-ride by maximizing the use of air and land resource for optimal production earnings without necessarily incurring the cost of adopting pollution mitigation measures. When stakeholders turns to informal negotiation, as recourse, to create informal rules on drift mitigation, rule formulation tends to be based on the bargaining power of the stakeholders rather than third-party legal rulings or scientific validations.

For the final question, employing all the mentioned research methods, the case studies identify the social technology of organizing and lobbying as the significant external factor of institutional change when the process scaled up from village to city level. Dynamic transaction costs of AS ban are shouldered by the collective of affected residents. Such distribution of transaction cost of information between the affected villagers and the polluting companies raises question of equity and fairness. The case also shows that counter-agents of institutional change are capable of raising the bargaining cost expended by the agents. Proposed institution mandating the shift from AS to GS results to less pesticide drift compared to prior institution permitting AS. However, under the proposed institution, considerable number of residents shall remain exposed to GS drift. The study recorded a maximum extent of 492 meter for GS drift. 53.7% of the total 88 respondents from the studied villages reported experiencing at least one of the several toxic syndromes of drift exposure due to current GS practice.