

4-14-92
WORKSHOP IN POLITICAL THEORY
AND POLICY ANALYSIS
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W73-9

TROUBLE CASE INVESTIGATION OF A
PROBLEM IN NIGERIEN RURAL MODERNIZATION:
FOREST CONSERVATION

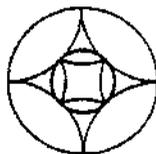
by

James T. Thomson

I owe thanks to Vincent Ostrom and Ronald Oakerson for their consistently insightful comments on earlier drafts of this article. I am further indebted to the Foreign Area Fellowship Program for funding field research in Niger (November, 1970-March, 1972) upon which this paper is based; to the Government of Niger for permission to undertake the study; and to various Nigeriens, including the personnel of the Centre Nigérien de Recherches en Sciences Humaines, Niamey, administrators, and the residents of Inuwa District, Mirria County, who were all both patient and helpful.

In Approaches to the Study of Rural Modernization: Multi-Disciplinary Research in Hausa Speaking Niger, Robert Charlick, ed., Berkeley, California: University of California Press.

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This paper assesses the trouble case methodology as a research tool in the study of Nigerian rural modernization processes. As a vehicle to illustrate the methodology, I take the government forest conservation program, a critical if somewhat neglected component of the overall Nigerian rural modernization effort.

The paper comprises three parts: history of the forestry problem and attempts to solve it (sections I and II); theoretical framework, including a public goods analysis of the problem, a model of legal relationships, and a description of the trouble case methodology (sections III-V); and data and conclusions, consisting of forestry trouble cases, estimates of the effectiveness of current attempts to solve the problem and of other possible approaches, and an assessment of the merits of the trouble case methodology in this type of study (sections VI-VIII).

It is argued here that the Nigerian forest, from the viewpoint of most users, is an unregulated common property. In the absence of regulation it will be destroyed, with disastrous consequences for the environment and the local human ecologies. Regulation is thus a necessary condition for Nigeriens to sustain mutually productive relationship with each other concerning their forest resources. But current enforcement procedures, rendered ineffective by corruption and rule manipulation, fail to curb the developing negative dynamic in which users have little incentive to reorganize their demand patterns and no incentive to generate new supplies as existing ones are exhausted. A tragedy is therefore in the making.

I. Forestry Problem

Inuwa means shade in Hausa. The village of Inuwa,¹ seat of a district chieftaincy in Mirria County, lies in a broad valley on a seasonal watercourse. If Hausa place names, old men's stories and a nearby remnant of state forest accurately reflect past circumstances, the entire valley was once wooded. Now, few shady spots remain. Up on the plateaux above the valley, the landscape takes on a forlorn aspect. Windswept, dotted only here and there with acacia trees and scruffy bushes, the scenery reminds one that the real sand and gravel Sahara begins a scant 100 miles to the north.

Population increase explains much of the transformation of the Inuwa District environment. After French colonization in 1899, a growing population settled previously empty tracts and within a half century, turned land and wood from free goods to economic commodities. In the pre-colonial Damagaram kingdom (which centered on present-day Mirria County), bushland was a common property subject to almost unregulated exploitation. Those who established proper relations with Damagaram officials enjoyed limited usufruct rights, valid as long as they exploited a piece of land and lapsing when they abandoned it. Labor, not land, was the scarce factor in the economic equation, so people concerned themselves more with establishing control over men than

¹subcounty-level personal and place names and official titles have been changed to maintain anonymity of actors and informants.

with accumulating titles to real estate.² Property rights in trees on the fields were vague. Trees in the bush, except for a few species protected by the Damagaram forester, Sarkin Dawa, were subject to exploitation at the will of the user.³

Now as then the Inuwa District environment supports both farming and herding ecologies. The forest conservation problem derives partially from the relationships of herders to farmers and from the complementary and competitive demands they make upon the Woodstock. The major problem they attempt to handle is keeping the cattle from the corn in a region where large scale fencing is difficult if not infeasible. The weather cycle-- rainy from June to September and dry the rest of the year-- patterns their interactions.

Agriculturalists

Village-dwelling agriculturalists include Hausa, Barebari, Bugaaje (descendants of Twareg slaves) and some sedentarized Fulbe who have quit the nomadic herding existence. All derive the staples of their existence from rainy-season farming, though they keep livestock and pursue dry-season trades as well.⁴

Traditionally farmers practiced a rotating fallow type of agriculture, but French policies promoting cultivation of more

²Gilbert Vieillard, "Coutumier du Cercle de Zinder (Haoussa et Beriberi)," Coutumiers juridiques de l'Afrique occidentale française (French West Africa, Commission de Codification des Coutumes Juridiques; Paris: Larose, 1939), III, 144, 151.

³Ibid., III, 142, 147.

⁴Guy Nicolas, "Un village haoussa de la République du Niger: Tassao Haoussa," Cahiers d'outre-mer, XII, 52 (octobre-décembre, 1960), 421-50; and Guy Nicolas, "Un village Bouzou du Niger; Etude d'un terroir," Cahiers d'outre-mer, XV, 58 (avril-juin, 1962), 138-65.

land and population pressure have led to individual appropriation of the arable bush land in Inuwa District. Many families cannot now meet the following requirements of the traditional system on the land they have and soils are deteriorating.⁵

The spread of field agriculture has drastically reduced the wood stock in the district: in clearing ground for cultivation farmers habitually cut down bushes and all but the largest trees, then often fired the cleared brush, killing most tree seedlings. Such practices are now modified with respect to trees, however, seedlings are still destroyed unless special precautions--which involve annoying extra effort--are taken to preserve them.

The sedentary population's steady demand for wood and wood products used in cooking, heating, housing and storage construction, tools and fencing increasingly depletes the wood stock. Enclosures pose a special problem. Thorn branches are the only material available to erect stock-proof fences on a large scale. Even then it is only possible to enclose large areas when a number of farmers can cooperatively fence a common terrain. Only the Bugaaaje land tenure pattern is appropriate to this sort of enterprise.⁶

Hausa and Barebari holdings are so fragmented that these groups find it preferable to employ village herders during the

⁵République du Niger, Ministère de l'Economie Rurale, Commissariat Général du Développement, "Projet de développement rural du département de Zinder. Augmentation des ressources agricoles des arrondissements de Mirria, Magaria, Matameye." Niamey, July 1971.

⁶Nicolas, Cahiers d'outre-mer, XV, 58 (avril-juin, 1962), 138-65.

growing season to confine sedentary-owned livestock in grazing commons. During the long dry season, however, village fields revert to common pastureland, and livestock wander freely in search of fodder. Those who wish to pursue gardening as a dry season trade must thoroughly barricade their plots with thorn fences to exclude hungry animals.

Nomadic Herders

Fulbe nomads avoid conflicts with agriculturalists during the wet season by taking their herds north into the Saharan fringelands. When the rains end, they descend again to the more southerly regions. If they arrive before farmers have put up the summer's produce and allow their livestock to devour unstored field crops, vicious fights can erupt. Except rarely, when sedentaries combine to resist, they tend to lose such encounters to the nomads and often suffer serious injuries or even death in the process. On the other hand, once the crops are safe farmers want livestock to graze their fields: manure is often the only fertilization between fallow periods.⁷

When the last edible stalks have been consumed, by February or March, herds must survive on a miserably thin diet gleaned

⁷Local people do not now use the more laborious green-manuring technique prevalent in the Maradi area, which permits continuous cultivation of fields for long periods without the necessity of fallowing. Cf. Henri Raulin, Techniques et bases socio-économiques des sociétés rurales nigériennes "Études Nigériennes, 12," Niamey, Paris: IFAN, CNRS, n.d. [1962?]), pp. 21-43.

from barren fields. Fulbe supplement this with tree leaves, obtained by felling entire branches which the cattle strip. In the process, trees may be reduced to lifeless trunks. Occasionally the herders also fire bushland in the dry season, hoping to trigger an early growth of grass which will sustain their herds until the rains come. This practice destroys tree seedlings. Seedlings are also exposed, despite their thorns, to intense grazing pressure.

Given rising population the fragile Inuwa environment is being overwhelmed by the combined impact of the herding and farming ecologies. Denuded soils are exposed to wind and water erosion. Stripping wood cover from the land not only stops formation of humus but reduces the value of manure by exposing it to the sun for long periods before the rains decompose and wash it into the soil.

A large thorny acacia tree, the gawo (Faidherbia albida), can play a critically beneficial role in this respect because of its anomalous growing cycle. It bears its foliage during the dry season, when other trees have shed, and drops its leaves during the rains. As a shade source in the dry season it attracts animals; during the wet season, it offers farmers a strategically-fertilized, sunny spot when other trees, then in foliage, shade out crops.

However, the inability to effectively exclude animals and humans from any but garden-size plots during the dry season means that no one sees any incentive to improve the quality of the wood stock on his own fields. Rather, each tries to derive

the maximum benefit he can from the dry season commons by running as many animals as he can on it.

II. Conservation Program

In the mid-1930's French colonial officials initiated a soil and forest conservation program throughout the French West African colonies. They extended it in 1949. Decrees authorized administrative control of grazing, burning, and wood-cutting practices in an effort to maintain a reserve of wood land.⁸

By 1957 a conservation program had been implemented in Mirria County, but officials faced local resistance and slackened somewhat in their efforts to apply the regulations.⁹ The program has been continued into the independence era.¹⁰

Controls are theoretically effected through a licensing system. Applicants purchase cutting permits, renewable monthly for 700F CFA¹¹ for 20 donkey loads of firewood. Permits to cut protected species range from 250-600F CFA per trees. Violators are officially liable to extremely heavy fines, running to

⁸Lord Hailey, An African Survey; A Study of Problems Arising in Africa South of the Sahara (Revised edition; London: Oxford University Press, 1957), 1056-57.

⁹Territoire du Niger, Cercle de Zinder, Subdivision Centrale, No. 12/-C; Rapport Annuel, Année 1957, p. 69.

¹⁰Report of the Minister of Rural Economy, "Réunions d'information a l'Assemblée-Eaux et Forêts, chasse et pêche," "Le Niger," XIII, No. 10 (5 March 1973), p. 2.

¹¹200F CFA - \$1.00 US.

several thousand francs CFA.¹² Similarly heavy penalties sanction illegal bush fires.

Local agents of the national Conservation Service (Service des Eaux et Forêts) enforce these regulations. The Service is organized within the Ministry of Rural Economy, along hierarchical lines which parallel those of the national administration. Conservation Service offices have been established in each state and in the subordinate county units. Field agents' activities are directed from the county level.

Service authorities say their field agents still face difficulties: commoners do not understand the agents' role as producers of public goods, and resist their regulation activities.¹³ It is, however, possible that commoners have a different image of the problem.¹⁴ Regulation was imposed from the top down, in consequence of officials' perceptions about a dangerous degradation of the environment. Commoners are undoubtedly aware of the degradation; but they take account of factors officials did not consider. In any case, despite the forestry code

¹²"Maradi; Les Eaux et Forêts: importance source de développement économique du pays . . .," "Le Niger," XIII, No. 8 (19 February 1973), 4; and Guy Nicolas, Circulation des richesses et participation sociale dans une société Hausa du Niger (Canton de Kantchej (2nd ed.; Bordeaux: Editions du Centre Universitaire de Polycopiage de l'A.G.E.B., 1967), pp. 156, 162.

¹³"Entretien avec le nouveau Directeur du service des Eaux et Forêts," "Le Niger," XII, No. 37 (16 October 1972), 2.

¹⁴Kenneth E. Boulding, The Image; Knowledge in Life and Society (Ann Arbor, Michigan: University of Michigan, 1956), chaps. 1, 2, and 4, esp. p. 63.

regulations, administrative estimates suggest continuing deforestation.¹⁵

III Structures of Events¹⁶

Structures of events¹⁷ relate to the ability of individuals to control the effects which result when they act with reference to particular events in different situations. Structures of events may be roughly classified by the degree to which an event in all its attributes is subject to individual control in possession, exchange and consumption.¹⁸ They may be ranged along a continuum, from those situations in which non-interacting individuals are highly independent of each other to those in which they are highly interdependent.

¹⁵"Appel de M. Maidah à l'occasion de la semaine de l'arbre," "Le Niger/¹ VII, No. 32 (26 August 1968), 8. Maidah Mamoudou, then Minister of Rural Economy, offered figures indicating that organized tree plantings amounted to about 3.51 of the annual amount of terrain cleared during 1965-67. The replant rate currently remains about the same while population increases at better than 2% annually, implying a long-run rising demand. These figures ignore natural reforestation. This may be the most efficient restoration method; but it is the survival rate of seedlings which is critical, and that depends on effective regulation.

¹⁶This section draws heavily on Vincent Ostrom, The Intellectual Crisis in American Public Administration (University, Alabama: University of Alabama Press, 1973), pp. 53-54.

¹⁷"Event. 3. Something that occurs in a certain place during a certain interval of time." Random House Dictionary of the English Language.

¹⁸The following conceptual framework is meant as a starting point for analysis. The categories of non-private goods are not mutually exclusive, but overlap in that common properties and public goods may be categorized in terms of externalities. Because of certain differences in the dynamics leading to the generation of externalities in each category, it is useful to treat them separately.

Private Goods

We may define goods as events for which people have preferences, bads as those for which they have aversions. Private events are those entirely subject to control in possession, exchange and consumption (i.e., they are subject to both exclusion and appropriation). A tree is a private event, or private good, if it is fully subject to exclusion in possession, exchange and consumption. Actions or transactions concerning private events do not generate effects impinging on those not directly party to them. A tree in an American farm wood lot is a private good in this sense: whether it stands or is cut concerns only the farmer-owner and perhaps potential buyers, but not adjacent farmers.

Non-Private Goods

Events not totally subject to exclusion and appropriation involve various degrees of interdependency in their possession, exchange and consumption. What one individual does concerning such events affects what others do. Action with regard to a non-private event generates indirect beneficial or harmful consequences which impinge upon others in the domain of the event. According to the degree of interdependency involved, non-private events may be classified as goods involving externalities, common properties and public goods.

Goods Involving Externalities

Many but not all attributes of a good involving externalities are subject to exclusion and appropriation. Others impinge upon

individuals not directly involved in possession, consumption or exchange of the good. Whether they gain or lose as a result, it is without their say-so: they are dependent on the decisions of others. Such effects are frequently termed spill-over effects, and may be either positive or negative. As an appropriate example of a negative externality or spill-over, consider the act of harvesting a tree, for whatever purpose, in the fragile environment of Mirria County. Most aspects of the act do not impinge upon others: the tree may be consumed or marketed essentially as a private good. However, cutting a privately owned tree under such conditions may generate indirect effects. The act of cutting destroys some part of the total ground cover. If enough individuals harvest their private portion of the total ground cover, cutting exceeds safe yield and the overall environment may be damaged to the point where it is no longer habitable.

Common Properties

Common properties involve a common supply, from which users cannot be effectively excluded, and generally, separable use or consumption. They are goods in relation to which multiple users have rights against others and are themselves at liberty to exploit, subject to the rights and exposed to the liberties of others. A common property may lend itself to multiple uses, some complementary, some competitive. It may be replenishable.

The Mirria County wood stock or ground cover may be considered a replenishable common property. It is composed of trees, each subject to private appropriation and exclusion.

But the continued existence of the common property, as distinguished from individual trees, depends upon maintenance of sufficient ground cover to prevent the environment from degrading. In this sense, the common property may be conceptualized as a particular sort of biosystem, subject to modification over time. Trees can be replaced through natural regeneration so long as the biosystem exists; but once destroyed, it will be reconstituted only with great difficulty, if at all.

To protect the common property, users must respect conditions of safe yield: they ought to appropriate no more of the ground cover (trees, etc.) than is reproduced by the capital stock in any time period. But will they? Let us examine the dynamic which bears on use of an unregulated common property.

Below the safe yield point, no use impinges upon any other. Above that point, the interdependencies of decision-making in common property situations become manifest. Using Mirria County as an illustrative case, we find competing uses beginning to interfere with each other. Herders firing bush land or topping trees to fodder livestock and farmers cutting wood for various purposes all generate indirect effects for the whole class of users--each other--by mining the supply of ground cover and destroying the bio-system in the county.

Only by increasing supply, reducing effective demand, or some combination of the two, can the capital stock be preserved. But absent effective regulation the structure of legal decision rules is such that no user has any rational incentive to modify his behavior concerning the common property. Any costs he

imposes upon himself to preserve it redound to the benefit of individuals who continue to exploit the resource as before. Indeed, to protect himself in the short-run he is forced into a destructive competition with other users, the goal of which is to appropriate as much as possible of the capital stock for himself.¹⁹ Thus, he is locked into a negative-sum game played against all other users.

The dynamic leading to this situation has been aptly termed "the tragedy of the commons."²⁰ Such a tragedy is in the process of working itself out with respect to the Mirria County wood stock. If it goes to the limits, the desert will invade the region, frustrating any attempt at rural modernization.²¹ It was to counter this development that controls were introduced by French colonial officials and have been continued into the independence era.

Public Goods

Public goods may be defined in various ways.²² Here we define them as goods which, once produced, become available to all consumers within the affected domain regardless of whether they bear a share of the costs of production. It is infeasible

¹⁹Vincent Ostrom, "Some Problems in Economic and Political Analysis of Public Policy," Political Science and Public Policy (Chicago: Markham Publishing Co., 1968), p. 124

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Garrett Hardin, "The Tragedy of the Commons," Science, Vol. 16 (13 December 1968), 1243-48.

²¹

There are disquieting indications that this process is underway throughout the West African Sahel and savannah regions. See "The Great West African Drought, West Africa, No. 2917 (7th May, 1973), 586-87; and François Charpentier, "Sahel Nigerien en Perdition," "Le Niger," XIII, 22 (28 mai 1973), 2-3 and "Le Niger," XIII, ²²23 (4 juin 1973), 2, 8.

Elinor Ostrom, "On the Variety of Potential Public Goods," (unpublished ms., n.d., Department of Political Science, Indiana university.)

to exclude anyone. Those who can enjoy without contributing get the good for free and so have no incentive to produce it.²³

In these terms, environment maintenance is a public good because no resident of the affected domain can be excluded from enjoying the benefits derived from it. Rain falls on rich and poor alike. Ground cover is the key to environment maintenance. When it goes, the desert moves in, reducing land available for farming and herding.

In large groups such as that under discussion (residents affected by environmental conditions in Mirria County), no individual has an incentive to produce the good on a voluntary basis. He himself receives only a small fraction of the value of any public good generated by his effort (the major portion being consumed by other members of the group, who cannot be excluded from enjoyment), and his effort in any case makes no noticeable contribution to the production of the good.²⁴

Because of this structure of events, officials considered voluntary provision of the public good of environment maintenance unlikely, and so tried to produce it through legal regulations, that is, through collective action.

²³Cf. Mancur Olson, *The Logic of Collective Action; Public Goods and the Theory of Groups* (Cambridge, Mass.: Harvard University Press, 1965), pp. 14-16 for a more formal definition and discussion.

²⁴Olson, *Logic of Collective Action*, pp. 35, 48, 50-51.

IV. Structure of Legal Relationships.

The Niger forestry code declared trees a legally regulated common property resource. But rules do not enforce themselves. Officials must be assigned the capability of applying sanctions; whether and how they do so is critical to the effectiveness of law as an instrument for channeling human behavior and promoting mutually productive relationships.

John R. Commons developed a model of legal relationships

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which directs attention to the issue of enforcement. Commons' model facilitates analysis of the way legal relationships allocate strategic opportunities and limitations among those subject to them. It reveals how rules bias the game among different categories of players and so structure their conduct.

Working Rules of Going Concerns

By the phrase "working rules of going concerns" Commons means the entire gamut of laws which, as enforced by officials, regulate members' conduct in the regimes or groups to which they apply. Like the rules of a sporting game, working rules divide into lawful and unlawful acts, build in limits on what

²⁵Legal Foundations of Capitalism (Madison, Wisconsin: University of Wisconsin, 1959; first published 1924: New York, Macmillan), pp. 65-142. I draw also on Vincent Ostrom's and Elinor Ostrom's succinct characterization of Commons' model in their paper, "Conditions of Legal and Political Feasibility," ("Studies in Political Theory and Policy Analysis," Political Science Department, Indiana University, 1969), pp. 6-12, an abbreviated version of which appears as "Legal and Political Conditions of Water Resource Development," Land Economics, XLVIII, 1 (February, 1972), 1-14.

players can legally do to each other, and define how they can score and win. Rules govern two distinct kinds of transactions. In authorized transactions, players act within the existing set of basic rules without trying to challenge or modify them. In authoritative transactions, officials enforce, interpret and change rules.

Authorized Transactions

Working rules allocate four gradations of decision-making capability among the players. Rights and liberties expand decision-making capability (authority) while exposure and duty contract it. The concepts interrelate as illustrated below:

Authorized Transactions

Correlatives and Equivalents

L I M I T S	R E C I P I N R D O C A L S	<u>RIGHT</u> Capacity of claim	(relations of hierarchically- (ordered, legally-constrained, (secure interaction between (legal unequals))))	<u>DUTY</u> Subjection to claim
))))	<u>EXPOSURE</u> No capacity of claim	(relations of non-hierarchi- cally-ordered, non-legally- (constrained, risky inter- (action between legal equals))))	<u>LIBERTY</u> No Subjection to claim

DIAGRAM I (Adapted from Commons, Legal Foundations . . . , p. 97.)

Right-Duty: Ordered Interaction

Right and duty form ends of a hierarchically-ordered authority relationship which assigns to the person having the right a lawful capacity to claim some behavior from the individual under duty, while subjecting the latter to an exactly equivalent and correlative legal obligation of obedience to that claim.

Liberty-Exposure: Risky Interaction

At the limit of a person's right his capacity of claim ceases; he can no longer obtain obedience at law from the individual heretofore under duty and so now acts under a condition of exposure. The correlative party, freed of duty, is at liberty to act as he pleases. He may legally damage the exposed party if he will.

Authoritative Transactions

We now consider the second set of strategic opportunities and limitations, created by authoritative transactions. These reaffirm or modify authorized and authoritative relations. Both concern members and officials exercise power in resolving disputes (remedial powers), and in changing rules (substantive powers and determining powers). The full schema appears below:

		<u>Authoritative Transactions</u>			
		Correlatives and Equivalentents			
		OFFICIAL	MEMBER	MEMBER	OFFICIAL
L I M I N T S A L S	R E C	<u>POWER</u> Capacity of command	<u>RIGHT</u> (legally) (constrained) (behavior)	<u>DUTY</u> Subjection to command	<u>LIABILITY</u>
	M A P I N R T D O S	<u>DISABILITY</u> No capacity of command	(non-legally) (constrained) (behavior)	<u>LIBERTY</u> No subjection to command	<u>IMMUNITY</u>
	A L S	<u>IMMUNITY</u> No subjection to command	<u>LIBERTY</u>	<u>EXPOSURE</u> No capacity of command	<u>DISABILITY</u>
		<u>LIABILITY</u> Subjection to command	(legally) (constrained) (behavior)	<u>RIGHT</u> Capacity of command	<u>POWER</u>

DIAGRAM II (Adapted from Commons, Legal Foundations . . . , p. 124.)

Remedial Powers

In a disputed transaction each party asserts a different version of authorized relations. Officials resolve disagreements by authoritatively correlating one party's right with the other's duty. This decision likewise determines the limiting liberty-exposure relationship. If the deciding official holds that a member has defaulted on his duty he compels him to meet the obligation. The mechanism is official responsibility, that is, the power of one official to cause another to enforce the duty on the member. If the second official fails to do so he is liable to sanction. The official's power-liability relationship is the authoritative analogue of the members' authorized right-duty relation.

It is obvious that without a remedy, there is no right. Rights enforce themselves no more than rules do. If a member cannot effectively secure official aid to enforce his asserted right, he cannot legally claim behavior from another member.

When the deciding official holds the disputed actions occurred in the context of a liberty-exposure relationship, he declares himself under a disability to compel another official to act. The latter is legally immune to his commands. The authoritative immunity-disability relationship thus mirrors the members' authorized liberty-exposure relationship.

Substantive Powers

Substantive powers permit a concern member to create, modify, or extinguish authorized relations on a basis of willing consent,

as when parties exchange in a transaction, contract, etc. The transacting individuals change the rules of the authorized game governing their own conduct with respect to the object of the transaction, and also lay down working rules concerning that object for others who might be interested in it in later authorized transactions. But they can make law for themselves and others in this way only because officials can be made, through remedial powers of the members, to enforce authorized relations.

Determining Powers

Determining powers of officials are those they exercise at their own discretion, under a condition of immunity from review and sanction by their superiors or courts. Immunity may be either de jure or de facto. The effect is the same: an increase in the official's range of discretionary decision-making capability. Within the range of his determining powers, what he chooses is law. If he expands the liberty of some parties by reducing their duties and the rights of others, it means those others are subject to greater exposure.

Evidently officials' determining powers can be employed to create strategic opportunities for themselves and for favored concern members. However they exercise them, officials are engaging in political economy, proportioning inducements and deterrents to action through maintenance or manipulation of the working rules, to these individuals and associations subject to them.

V. Trouble Case Methodology

Commons' model of working rules of going concerns, with its emphasis on the decisive role of concern officials in establishing the law on a dispute by dispute basis suggests the trouble case methodology as the appropriate one to generate data for the model.

Karl N. Llewellyn and E. Adamson Hoebel first used it in the systematic investigation of primitive law when they studied the law ways of the American Cheyenne Indians.²⁶ They argued that trouble cases--"instances of hitch, dispute, grievance, trouble"¹--reveal more accurately the reality of law in a culture than study of ideal normative patterns or everyday behavior. One ought by no means to ignore normative patterns or the practice of everyday behavior occurring within the constraints of the working rules. Both these perceived "right ways" and normal ways of doing things interplay with the locally sanctioned rules of law. But if regularities in human conduct are to be explained by reference to rules, then trouble cases are the way to see rules in action, at the boundary points between licit and illicit action. In the end, they are the way to find out whether a stated norm is applied in practice, and if it is, how it is.

By seeking out and examining trouble cases one can establish at least three kinds of information important for this study.

²⁶Cheyenne Way: Conflict and Case Law in Primitive Jurisprudence (Norman, Oklahoma: University of Oklahoma, 1941), pp. 20-28.

First, the cases reveal which going concerns or regimes actively deal with the problematic situation. They show which sets of rules must be taken into account in attempting to analyze conduct of litigants or violators. They indicate second whether there is a standard application of the rule to offenders; whether selective application is common practice; and if it is, something of the underlying reasons. Third, the cases reveal if the rules as applied establish the conditions for a positive-sum game, in which members have reasonable incentives to modify their conduct in ways which will promote mutually advantageous relationships. They may indicate a less-preferred outcome. If this is the situation dispute resolutions may demonstrate the existence and character of strategic opportunities for members to evade costs of abiding by the rules. Fourth, the cases may suggest that such strategic opportunities can be expected to persist, given the existing regime and economic structure, despite efforts to organize alternative solutions. If so, they may be very useful in estimating feasibilities of such alternatives, and the extent to which they are subject to limitations.

VI. Forestry Trouble Cases

A commoner resident of Inuwa District clearly stated the revision in working rules propounded by the forestry code harvesting controls:

Chiefs [sarakuna] live off the commoners [talakawa]. The commoners live off the bush. Now the chiefs have prohibited us from living off the bush. We commoners,

what are we to do? You just go into the bush and you steal. If the Forester catches you, he catches you.²⁷

Implicit here is the entire problematic nature of the Nigerien forest conservation program: to what extent, if at all, can national legislation as presently implemented introduce new regularities in human behavior in the context of this common property situation?

The materials on which the answer is based are drawn largely from trouble case experiences of villagers in the community of Dajin Kowa [Dajin Kowa means literally "Everybody's Bush" in Hausa] located in the Mirria County District of Inuwa.

To enforce regulations on use the Conservation Agent makes bi-monthly tours through the area. He is generally accompanied by an Inuwa District dogari (traditional policeman), assigned to him as an assistant by the district chief, Barde. The dogari's task is to furnish information about infractions and the identity of delinquents.

When he discovers a violation the Conservation Agent assesses the damage and writes a ticket specifying the fine. If official procedures are followed, he forwards the ticket to the Mirria County Conservation Service. From there it goes back to Inuwa District via the Mirria Sub-Prefect to the Inuwa District chief, Barde. A dogari delivers it to the offender, who pays the fine at the Mirria Conservation Service office.

²⁷ Guy Nicolas suggests such conduct is standard as well among commoners in neighboring Matameye County. Circulation des richesses . . . , p. 162.

Official procedure has, however, been subjected to certain critical modifications since the forestry code was first promulgated.

We turn now to cases. Note that none of the offenders had obtained a cutting permit.

The first incident occurred about 1959, a year before full independence was obtained. It concerned a Dajin Kowa elder, Tari Kane:

Late in the hot season Tari was preparing his field for planting. He asserts there were no gawo trees in his field and few in the vicinity. An Agent, unaccompanied by a dogari, passed on an inspection tour and accused Tari of having uprooted gawo seedlings as well as brush from the field. Tari protested. The Agent insisted he was guilty and rode off, saying the fine would be 4,000 CFA.

Tari later received notification via the district chief that he should go to the Conservation office to pay the fine. He sold garden produce and seed peanuts (stocked with the intention of planting a cash crop during the coming rainy season) for 4,000 CFA and did so.

Tari said he had had no chance to fix the fine: the Agent made his report to the superior, and that foreclosed attempts at "conciliation." But in recounting the case, he viewed the incident philosophically: "If there's no governmental authority to enforce the law, there's no ibada" ("Continued and consistent practice of behavior from which no apparent benefit is obtained or can be expected." Bargery's A Hausa-English Dictionary.) "It's fear that causes ibada," he said.

The next case, from 1967, indicates one infraction Mirria Conservation Agents continue to penalize heavily: bush fires.

A Dajin Kowa youngster, Yaro, started a cooking fire during the cold season in the Dajin Kowa bush. A wind whipped the flames out of control and took the blaze more than a mile west. The Conservation Agent, touring the area two weeks later, ran across the burn and investigated. He determined that Yaro was a juvenile, and so dealt with the boy's father, Haru. He first set the fine at 30,000 CFA, a staggering sum for a commoner.

However, Haru's uncle Tsoho, a Dajin Kowa elder, secured relief. Tsoho's brother had served at the courts of the Inuwa Barde and of Sarkin Damagaram, the provincial chief in Zinder. Until his recent death he had also been a friend of the Agent. Tsoho and Haru rode to Inuwa to meet the Agent before Barde. They took no gaisuwa (traditional greeting money) to Barde: Tsoho said that since his brother had been one of Barde's courtiers, they belonged to the chief's family and Barde ought to assist them if he could.

The chief, Barde, and the commoners discussed the matter with the Agent, who quite readily agreed to reduce the fine to 10,000 CFA in honor of his deceased friend, Tsoho's brother. But he firmly resisted all further pleas. When Barde continued to press him, the Agent replied that, had Barde's own son been responsible for the fire, the fine would still have to be paid. Were such the case said the Agent, he would himself pay the amount since his superiors had made it clear that fines and wood-cutting permits formed the chief sources of Agents' salaries.

In the end the commoners agreed to pay 10,000 CFA. They secured a month's delay to collect the money. The fine came at a bad time, as the Dajin Kowa householders had just finished paying their annual taxes. Haru sold garden produce for 8,000F CFA and Tsoho contributed 2,000F CFA to make up the total. Haru's brothers had nothing to give as all their money had gone for taxes.

In 1968 a father and son were apprehended on another charge of infringing forestry regulations:

Lassan and his son Ibrahim farmed a dry season garden. They were trimming gawo branches to use in repairing the thorn fence. Along came two horsemen, one a Conservation Agent, the other an Inuwa District dogari, Maigemu. The officials informed the commoners they were violating the forestry code and issued Lassan a ticket.

The gardeners worked on long after the officials had departed. Finally, Ibrahim took 250F CFA and followed them to the neighboring village of Kashin Kura. There he tried to bribe the Agent.²⁸ The Agent refused; 2,500F CFA would be more commensurate with the damage involved he said, if Ibrahim wanted to arrange things.

²⁸ Commoners customarily use gaisuwa, presents in cash or kind, to initiate dealings with traditional officials. These are limited in value; legitimate gaisuwa for the Barde of Inuwa District do not exceed 100F CFA. When asked, Ibrahim said he considered the 250F CFA he offered the Agent a bribe, el gaisuwa ("little sister of gaisuwa").

Back in Dajin Kowa Ibrahim collected 1,500F CFA, then went to Inuwa. There he sought out Dan Dubu, the Mirria County PPN-RDA Councilor from Inuwa District. Having explained his difficulty and secured a promise of assistance, Ibrahim went home. Dan Dubu was to serve as intercessor for Ibrahim. The Hausa term for this role, gozoma ("midwife") suggests the traumatic character, for commoners, of contact with officials.

At daybreak Dan Dubu and Ibrahim set out for Kwado village: the Agent would be there collecting fines at the weekly market. Before contacting him, the two enlisted the support of a Kwado school teacher, Ibrahim's friend. Together they went to the Agent and Dan Dubu offered him Ibrahim's 1,500F CFA in settlement. The Agent rebuffed him, saying Ibrahim knew the amount was 2,500F CFA. But the school teacher and Dan Dubu were not dissuaded: at sundown, after a day's pleading, the Agent accepted 1,500F CFA and closed the matter.

Ibrahim noted that in these situations the commoner must find someone of influence to serve as gozoma. If the intercessor carries weight with the Agent, because of official position, family ties, etc., with persistence a favorable arrangement can be achieved. Inuwa District Councilors demand nothing for such services, Ibrahim asserted. They should aid commoners in trouble, and do. This was confirmed by Sule, President of the Dajin Kowa PPN-RDA village political committee and a friend of Ibrahim's. With Party help, he said, any sort of difficulty could be settled.

President Sule was personally involved as a violator in a case which conditionally attests the accuracy of his statement. The condition is that one has connections with Party officials.

In late 1970 Sule made a new millet silo. Needing a base on which to place it for protection from dampness, insects, etc., he selected a gawo in his own field and cut it. At about the same time a nomadic Fulbe herder cut another gawo in his field, Sule asserted, in order to fodder his cattle.

Several days later the Agent and his aid, Dogari Maigemu, appeared. Sule and his wife happened to be winnowing peanuts in the field. When asked, Sule admitted the violation. The Agent issued a ticket for both trees and Sule accepted it without protest. As he rode off the Agent told Sule to meet him in Tudu, a hamlet near Kwado village, or else the ticket would go to Mirria and

Sule would pay it in full. Sule was unsure of the amount but estimated it at between 4,000-6,000F CFA.²⁹

The Dajin Kowa President borrowed a horse and left at once to contact Jibrilla, the other Mirria County Councilor from Inuwa District. He found him with the Inuwa Barde, collecting taxes, and asked Jibrilla to accompany him to Tudu as gozoma. The Councilor declined, being just then too busy with tax matters, but offered to send in his stead an Inuwa District dogari, Hima. Sule accepted. Dogari Hima, a Dajin Kowa resident himself, was a son of Jibo, a close friend of the Agent with whom the latter stayed when he passed time in Dajin Kowa. As such he would be a suitable intercessor. Sule handed the dogari 500F CFA as a bribe for the Agent and together the two set out for Tudu.

At the outskirts of the village Sule stopped. Hima went on to deliver Councilor Jibrilla's message and Sule's 500F CFA; both were accepted, but with the warning that Sule had best cut no more gawo trees.

About a year later President Sule observed the same Fulbe herder in his field again, stripping branches from a gawo. This time to avoid further personal difficulties he reported the incident to the Agent. The Agent said he had many times fined the herder in question, but to no avail; he continued his depredations as he pleased in the bush.

This is the system of working rules from the commoner's viewpoint. We now review the administrative history of the forest conservation program in Inuwa District, primarily in order to illustrate the determining powers of the Agent's dogari helper.

Illo Isa, a young relative of the Inuwa District chief, was Barde's first appointee to the post of assistant. He profited greatly from the office during the year he held it, by approaching ticketed commoners after the Agent left the district, with offers to fix their fines

²⁹The ticket likely did not exceed 6,000F CFA. Publically reported fines range from 2,000F CFA for a single gawo to 6,000 F CFA for multiple cuttings if the offender needs the wood and is not wantonly destroying trees. "Muryar Damagaram" (Hausa language newspaper published in Zinder by the Nigerian Adult Literacy Service, Vol. 1, No. 16 (April 7, 1966), 3, and Vol. 1, No. 18 (May 5, 1966), 4.

for a price. According to fellow officials Illo upon occasion extracted sheep, animals of substantial value, from violators.

However, he failed to fix the fines. Finally a group of commoners complained about his conduct to the Agent and Barde. All had lost something through Illo's shake-downs. Barde refunded 15,000F CFA to them and, fearful that his relative's behavior would involve him in difficulties as well, removed Illo from the assistant post. But Illo remains a member of Barde's retinue and continues to work for him.

Of the next incumbent, a timid soul, his fellow district officials reported scornfully, la la la gareshi; he feared the risks of illegal conduct and so would not fix fines. Four years he held the post until age forced his retirement. The job went then to Dogari Maigemu, who held it seven years. In a 1971 interview Maigemu stressed that it was standard practice to reduce fines in the manner detailed in the above cases. He formulated the problem of code enforcement as an issue in political economy, coupled with insistence that commoners recognize official prerogatives:

A Fulbe herder caught in a gawo, whether actually lopping off limbs or simply stripping smaller branches to fodder his livestock, pays 6,000F CFA per tree. A farmer in similar circumstances will be fined, but in most cases, much less than the Fulbe. When the Agent and his assistant have identified an offender they continue their tour. If the violator follows them, admits his guilt and pleads for relief, they destroy the ticket in return for a 1,000-1,500F CFA payment. Those who make no such effort eventually pay the fine in toto.

Farmers may trim low branches of gawo, Maigemu said, to facilitate cultivation of underlying areas, but trees may be removed only after permission is granted. Failure

to obtain permission before cutting is an affront to officials' authority and must be rebuked.³⁰

Non-residents apprehended cutting wood without permits are treated more severely than local people by the Agent, said the dogari, and rich violators are assessed more than poor ones. Often the poor are merely lectured, forced to surrender their tools, and released. Dogari Maigemu asserted it was pointless to persecute those with whom one would have to live in the future.

These statements are tested in a different perspective in the next case. Three weeks after making them, Dogari Maigemu's tenure as assistant came to an abrupt end. The Conservation Agent came into Inuwa village and told Barde he was calling a trial against his assistant.

The agent accused Maigemu of having embezzled 10,000F CFA in fines over the past two years, despite the fact that he gave the dogari 2,000F CFA quarterly and paid his taxes for him. Barde expressed surprise, saying Maigemu had given him nothing for taxes at any time during his seven year employment and that he had himself paid his subordinate's obligation.

Further questioning showed Maigemu had failed to give Barde 5,000F CFA which the Agent intended as reimbursement for one of the chief's horses, ruined while Maigemu was using it on a conservation tour. In the end, after weak excuses and protestations by Maigemu, the Agent dropped the issue of the embezzled funds and contended himself with reclaiming the horse he had subsequently loaned the dogari.

Barde selected another Inuwa traditional policeman to replace Maigemu as the Agent's assistant. However, Maigemu was not

³⁰Fulbe not infrequently resist attempts to police their conduct. During my residence in Inuwa District, for instance, five herders apprehended elsewhere in Mirria County for forestry code violations by an armed Conservation Agent and two dogari forced the officials to dismount by threatening them with poison arrows. The Fulbe scattered the officials' horses and then left with their livestock. The Agent in this instance acted with reasonable prudence: a great percentage of the homicides recorded annually in the County concern the Fulbe and they are typically not the victims.

relieved of his duties as dogari although he would be hindered by the lack of a mount in executing commissions for Barde. After the trial Maigemu's peers said that his favorite strategy was to discover commoners cutting wood illegally and then if the Agent failed to detect the damage on the next tour, demand bribes from guilty parties as the price for not informing the Agent of their offenses.³¹ It was reported that in 1970 he forced a commoner to surrender to him a ram purchased for use in the obligatory sacrifice at the naming ceremony of the commoner's latest child.³²

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In 1967 a Mirria County commoner attempted a variation of this strategy, seeking to shake down a fellow resident he discovered cutting a protected tree. Eventually he extracted 50F CFA (having demanded 250F CFA) from the woodcutter's wife, in return for his agreement not to report the violation to the Agent. The woodcutter then himself brought a complaint against the blackmailer and the latter was sentenced to three months¹ prison. "Muryar Damagaram," Vol. 2, No. 13 (23 March 1967), p. 2. Since 50F CFA is no exorbitant amount it is plausible to infer that the woodcutter acted with an eye to maintaining his future liberty to exploit the wood stock by silencing the informer. Otherwise he might have remained silent and avoided the risks of revealing to the authorities his own (isolated) violation.

Guy Nicolas notes extensive involvement of commoners in similar shakedown activities concerning smuggling (carried on by other commoners) from Nigeria in Matameye County. ~~Circulation des richesses~~ . . . , p. 161.

³²As the naming ceremony takes place seven days after birth, it is probable that delinquent was cutting wood to be used in boiling water for the equally obligatory 40 days of post-partal ablutions to which the mother submits as part of the childbirth ritual. The individual who recounted the Inuwa case cited above considered it inexcusable tyranny to shake down a commoner at the very moment when he was obliged to make substantial expenditures in sponsoring the rite of passage for his newborn child.

Another informant, a sometime woodcutter in Inuwa District, noted that those intending to cut wood often sought out Dogari Maigemu before entering the bush, and paid what he asked for protection. The bribes ranged from 50F CFA up, depending upon amount and type of wood involved. Refusal to pay could lead to trouble when the Agent arrived in town, said this informant.

The final incident in this series occurred immediately following Dogari Maigemu's trial and deposition:

Zahadi, resident of a village adjacent to Inuwa, had been ticketed with a wood cutting infraction by the Agent shortly before Maigemu's trial. He approached a Barde official and asked him to act as gozoma (intercessor) in settling the matter. The official declined, saying forestry code violations were not part of his official concerns, and sent Zahadi to another official, one of Barde's relatives. The latter asked what Zahadi had brought with him to facilitate the discussion. He replied he had 250F CFA. The relative wanted to know what he would receive for his efforts as gozoma. If he were successful said Zahadi, he would be rewarded.

The official convinced the Agent to accept Zahadi's bribe of 250F CFA. The Agent distributed it to his new assistant and several other Inuwa officials as "kola nut money"¹¹ (a stimulant, kola nut is so pervasively used among the Hausa that kudin gooro--"kola nut money"--is synonymous with pocket money).

The relieved offender told Barde's relative he would return shortly with 200F CFA as recompense for his intercession. This money, according to the informant, was ci da ceto ("A proportionate reward for some signal service [e.g., for having rescued a person's property which otherwise would have been lost]." Bargery's An English-Hausa Dictionary.) Had the relative merely sent Zahadi, on his way without asking for payment, once the Agent dropped the matter, then he would have been simply extricating him (ya cece shi). In the event, however, it was a case of ci da ceto. And, asked the informant, had not that been Bogari Maigemu's work?

VII. Case Analysis and Implications

Effective legal relationships, both authoritative and authorized³³ shape the strategies which individual officials and commoners pursue with reference to the common property Woodstock and the public good of environment maintenance. Although the use of the common property is theoretically subject to regulation under the forestry code, and the production of the public good is theoretically insured by that regulation, the cases show that the effective distribution of determining powers among officials leads to quite different outcomes.

Regimes

Three different sets of working rules, of three hierarchically-ordered but interdependent going concerns, govern the regulation of the Dajin Kowa wood stock. Individual woodcutters need to consider all three concerns in planning their strategies. Dajin Kowa is the most subordinate going concern. Significantly, no regulation occurs within this regime. Its members, the villagers, are subject to authoritative transactions undertaken by officials of the two overriding regimes, who enforce an attenuated form of the national forestry code.³⁴ The assistant, a dogari of the intermediate Inuwa District regime, is subject to the Agent, an official of the superordinate Mirria County Conservation Service regime.

³³Cf. Diagrams I and II, supra, pp. 15, 16.

³⁴Such appears to be the situation with respect to regulation of the wood stock in neighboring Nigeria as well. Labanji Bolaji, The Anatomy of Corruption in Nigeria (Ibadan: Daystar Press, 137TF), pp.66 - 67.

Officials' Strategies

The Agent and his dogari assistant have principal responsibility for regulating use of the common property wood stock in the district. The Agent depends upon the dogari for local knowledge and for enforcement of the code during his absence. Both Agent and assistant are informally constrained to justify their administrative offices by apprehending a certain number of violators. But presently, short of economically infeasible controls on their activities, there is no administrative means of determining how they handle all observed infractions.

Both officials exercise substantial determining powers. They can enforce duties against exploiters of the common property concerning prohibitions and regulations on its use. The Agent is immune from control, within very wide limits, by all but his own superior. The cases turn up no attempt by either commoners or Inuwa District authorities to hold him liable to sanction for failure to enforce the provisions of the code (nor did I hear of any such attempts). Rather, efforts of both commoners and Inuwa officials are directed at inducing him to manipulate application of those regulations.

Dogari assistants operate within ostensibly narrower limits of immunity. Commoners guilty of infringing the forestry code succeeded in one instance, by the mechanism of official responsibility (in this case, appeal to both the Agent and the dogari's primary superior, Barde), in having a dogari sanctioned for abusing the authority of his position, i.e., for promising to

manipulate the code for violators. However, the impetus for challenging him was not his acceptance of bribes to manipulate the code but his failure to deliver the service. The Agent independently dismissed another dogari--Maigemu--for failing to fulfill his obligations. The District chief, however, took no further action against either of his officials and they continue in his service, enjoying the standard benefits involved.³⁵ This suggests that a prudent dogari can exploit the office of assistant to his considerable personal profit over long periods.

The dogari assistant enjoys a rotatable de facto immunity from control because the Agent tours Inuwa District at most six times annually, and then only for short periods. During the Agent's long absences the dogari represents him and determines whether or not the code will be enforced.

Under these circumstances the dogari assistant has a valuable service to merchandise. By accepting bribes he can swell his own personal income beyond the payments made him by the Agent. The ci da ceto strategy, in which the "proportionate reward" is a bribe for the "signal service" of not exercising his power to cause a commoner to be fined, probably generates a good deal of revenue for the assistant, and short-term relief for commoners who find the bribe substantially less expensive than either a cutting permit or a fine. In effect he sells

³⁵On the evidence of other cases not here discussed, it would appear that district officials are dismissed by Barde only if they refuse to work for him. Embezzling funds destined for the chief, at least within broad limits, to say nothing of ci da ceto operations, are thus permissible actions.

liberty to exploit the common property instead of enforcing the duties which users are theoretically required to fulfill, concerning the purchase of harvesting permits. Prices of these liberties vary with the bargaining position of the purchasers: those guilty of violations which the dogari then discovers are liable to heavy fines, so that his protection becomes immediately more valuable. The more prudent who obtain protection first pay a smaller fee as the dogari cannot so effectively threaten them.

Note that these are authoritative transactions within the intermediate going concern of Inuwa District; they establish in each instance the purchasing commoner's ex ante or ex post facto liberty to exploit the common property, and the exposure of all other users to any externalities his use may generate.

The dogari functions thus as a keeper of the forestry code within Inuwa District, and structures his enforcement proceedings in light of his own liabilities to control and strategic opportunities to profit by the selective exercise of his determining powers. Evidently whenever he neglects to enforce a duty against one user he decreases the right (devalues it, in economic terms) of all other users of the common property and increase their exposure. At the same time he impedes the production of the public good of environment maintenance by authoritatively permitting a user to mine the existing wood stock without generating revenues to fund more regulation or alternative reforestation projects.

For remuneration, Inuwa District political and administrative officials will side with their commoners when the latter seek to subvert the forestry code. They compare themselves to shepherds, implying that they live off their commoners, but at the same time that they try to shield them from costly confrontations which benefit neither shepherd nor sheep.

The Dajin Kowa village as a going concern is entirely peripheral to the current attempt to resolve the forestry problem by regulation. The village head takes no part, nor do the cases show any evidence of an effective village organization for dealing either with the protection of the common property wood stock, or with the manipulation of the forestry code through authoritative transactions.

Commoners' Strategies

For commoners the forestry code remains at best a nuisance and at worst a generator of serious financial burdens. They seek whenever possible to evade the provisions of the code. People continue to make daily use of the wood stock, often ignoring the working rules of both the Mirria County regime and of the Inuwa District regime. Fuel requirements of most households in Dajin Kowa are still met by family members who scour the Dajin Kowa fields and adjacent bush for dead wood. Other intermittent needs, e.g., fencing or construction, are likewise met surreptitiously by those who feel the risk of discovery does not

justify purchasing a liberty of exploitation from officials of either the Inuwa or Mirria going concerns.³⁶

When they cannot entirely evade them, commoners seek to avoid full application of the code provisions. They either bribe beforehand for protection or, if charged with infractions of the code seek to have their fines reduced by the sanctioning official. They approach him through another official who has status and/or enjoys the Agent's respect. Individuals who lack connections with Inuwa officials, e.g., nomadic Fulbe, either pay a higher price for ex post liberties of exploitation or find themselves subject to the full letter of the national code.

The sole ground on which commoners will protest a sanctioning official's actions is repeated failure to deliver on a bribed promise of protection.

Except when they fear they may be held responsible for violations committed by others, commoners make no attempt to have officials enforce code provisions against other illicit users of the common property. They fear not only the ill will such actions would evoke among fellow villagers, but the animosity they risk incurring on the part of enforcing or other officials who might at a future juncture retaliate through the exercise of their determining powers concerning, e.g., tax collection, or

³⁶No professional woodcutters reside in Dajin Kowa. Because they retail their product publically in regional markets and are thus exposed to official control on a regular basis, most professionals find it prudent to comply most of the time with regulations concerning harvesting permits. But while the fuel demand of a regional center such as Zinder is substantial, 90 per cent plus of the Nigerien population lives in rural areas and much of their fuel wood cutting and collecting escapes control.

other wood-cutting transactions in which the complainant might want to engage.

The bribe bargain thus directly discourages commoners from claiming their rights: officials (who might have a prior arrangement with the supposed violator, by the terms of which the latter would be at liberty to exploit the common property}, would resent a commoner's openly concerning himself with their affairs. Authoritative transactions involving the common property are conceived to concern only the officials and persons directly party to them. In this sense the wood cutting transactions are handled as though they were private transactions between officials merchandising manipulations of the formal working rules of the Mirria County going concern and commoners purchasing locally authoritative liberties. They are not seen as public transactions involving externalities, the regulation of a common property in which all theoretically have rights, and the production of a public good, environment preservation.

Summary of Calculations Channeling Behavior

Working rules governing wood cutting in Dajin Kowa are such that (a) all commoners have an incentive to avoid complying with the forestry code in order to minimize their short-run costs; (b) commoners may negotiate the authoritative substitution of an individual liberty to exploit the common property for the duty to obtain a permit to exploit it; and (c) there is thus ineffective regulation of the common property. These circumstances must lead to mining of the common property wood stock

and to progressive erosion of the public good of environment maintenance.³⁷

Population increase rates suggest that partially enforced prohibitions on igniting bush fires and uprooting seedlings of protected species will only delay degradation of the common property without maintaining a wood stock sufficient to meet current, to say nothing of future, demand. Barring the institution of much more effective regulation procedures a tragedy of the commons is definitely indicated. The value of wood as a commodity will rise with further depletion of the resource, leading to both increases in the bribe price charged for the liberty of exploiting it and a more intensive clandestine scramble to appropriate the remaining stock. The incentive for any single user to invest time and effort in preserving or reconstituting the stock is correspondingly minimized: the fruits of his labor would be converted into the booty of forays undertaken by others into the bush to "steal" wood.

It can be expected that under these conditions actual regulation will neither dampen basic fuel and construction demands nor increase supply. Only as the total environment erodes, forcing many residents of Inuwa District (Dajin Kowa villagers included) to emigrate, will demand fall off. At that point, however, the productive capacity of the district will have been substantially, perhaps irreparably, impaired. This

³⁷Cf. James M. Buchanan, "Public Goods and Public Bads," in *Financing the Metropolis; Public Policy in Urban Economies*, ed. by John P. Crecine (Beverly Hills, Cal.: Sage Publications, 1970), 51-69.

suggests the order of magnitude of the exposure under which each user of the common property labors with respect to the liberty of all other users regarding exploitation of that property.

Other Approaches; Their Drawbacks

Alternative solutions must aim to restructure the working rules governing use of the common property biosystem. The goals of such restructuring must be to insure a long-term supply of wood and the production of the public good of environment maintenance. Unless an alternative set of working rules establishes effective regulation of the common property biosystem at the local level it will fail as has the national forestry code. But given the competition of multiple users and uses, it can be assumed that rules seeking to modify current use patterns will be violated. Thus the success of any alternative approach will turn on the critical issue of rule enforcement.

We will briefly sketch two possible alternative approaches to the problem of biosystem regulation with an eye to supply and environment preservation. Each must be examined in light of the probable locus and operation of authoritative transactions concerning enforcement of the authorized working rules. Each can be defined in terms of a different set of working rules.

Individual Ownership of Trees

In the first approach, what is now treated at the Dajin Kowa level as a de facto unregulated common property resource would be disaggregated into individual shares. Presumably field

owners would be vested with title to trees on their own lands. Each individual would then have the option of supplying himself with wood from his own trees or purchasing his needs from others. Some land owners might become specialists in wood production. Nobody would have responsibility for replenishing the now legally unrecognized common property biosystem: if an individual cut more than the safe yield of his trees, others would simply be exposed to his liberty of mining his share of the common property wood stock. Enough individuals would have to find it profitable to retain a wood stock on their own land, either to supply their own needs or as an income generator, to insure a minimum level of ground cover if supply and public good goals were to be achieved.

It seems likely however that individuals would be willing to devote time and effort to maintaining their trees only if they had confidence in the certainty of their property rights to wood on their land. But, given the demands of competing users and difficulties of enclosing land, particularly against determined Fulbe herders seeking fodder for their animals, it seems likely that the costs to individuals acting alone of enforcing property rights in trees will be prohibitively high.³⁸

³⁸Harold Demsetz suggests a critical factor governing the emergence of property rights is the ability to effectively police use of the claimed object, in terms of being able to enforce duties against non-owners. "Towards a Theory of Property Rights," American Economic Review, 57 (May 1967), 350-53.

Authoritative terms and conditions of enforcement action in Dajin Kowa (as in most other Inuwa District villages) would be largely established in the court of the Inuwa District chief, with limits to Barde's determining powers being set by eventual appeals to the Mirria County Sub-Prefect or the Zinder Justice of the Peace. But given the prevalence of the ci da ceto strategy among District officials, one would predict the generation in the Inuwa District court of substantial uncertainty about the rights, duties, liberties and exposures of woodcutters and wood owners, particularly since wood, unlike agricultural crops, has been traditionally considered a common property and assignment of ownership rights on geographical lines could be expected to raise serious equity problems. It is probable thus that owners would find themselves subject to serious exposures in the District going concern, in that they either would be forced to outbid violators to secure authoritative recognition of their rights, or costs of enforcement would be excessive.

If instead of complaining to Barde about a violation an owner were to attempt a self-help enforcement of his rights against a violator, particularly if injuries resulted, he would provoke a strong negative reaction from the District chief. In terms of his continued tenure as an administrator, Barde is judged more on his success in holding violence to a minimum in his jurisdiction than on his ability to promote certainty in property rights as a condition for environment maintenance.

Village-Level Going Concern

Another alternative would be to retain the legal recognition of the common property wood stock but shift the locus of the conservation enterprise from the Mirria County and Inuwa District regimes to the village going concern. Officials of that concern would then be empowered to take and enforce collective decisions concerning the wood stock. Wood supply could be assured either by regulated cuttings in the existing wood stock or through some form of common property production unit.

Many of the same issues would persist, however. Production would depend upon the ability of villagers to organize a collective enforcement mechanism, since otherwise time and effort costs of disputing responsibility for protection and allocation of the supply would be prohibitive. Yet here again the *ci da ceto* strategy at the district level threatens a breakdown in collective action. Corruption cannot be successfully prevented within the existing set of going concerns. Villagers would initially attempt to police violators, but the latter would likely appeal village decisions to the District chief, as they do now in land law matters. If it became evident that Barde's decisions could be bribed in conservation matters as they can in land cases, villagers would soon lose interest in prosecuting individual violations of the local forestry regulations. Typically, the value at stake in any single wood cutting incident would be less than in a land case, and the time and effort costs of winning a decision would outweigh the benefit to be gained.

If the *ci da ceto* strategy were replicated at the village level (as it is in tax matters), destructive competition within the village community would become intense once some members discovered others were actively exploiting the common property under an arrangement with the police assigned to guard and protect that property.

Thus under these two alternative approaches as well, the tragedy of the commons appears to be a probable outcome. The inability to enforce property rights in the first and to enforce local forestry regulations in the second means that individuals do not have the necessary incentive to preserve the common property biosystem over the short run. A destructive dynamic must be expected.

Dajin Kowa residents confront an unenviable situation in which their inability to impose constraints on human behavior leads them into short run maximizing strategies. The provisions of a forestry policy envisaging the promotion of long-term mutually advantageous relationships among villagers in Dajin Kowa and Inuwa District must perforce be ignored. The mutual generation of negative externalities continues apace, to the predictable detriment of all.

VIII. Assessment of Trouble Case Methodology

Any assessment of the trouble case methodology as a research tool must evaluate the data it generates from three distinct perspectives: completeness, cost and reliability. Completeness

must be considered with reference to the analytic purpose in view. My experience suggests cost and reliability are interrelated to an extent and are influenced by the structure of the political system within which one is attempting to collect data. The following discussion relates to my work in Inuwa District, but is probably applicable to other Hausa areas of Niger.

Completeness

The discussion to this point demonstrates the usefulness of the trouble case approach, given the theoretical framework of the paper, in pin-pointing the working rules of the several going concerns which bear on forestry code enforcement procedures. By focusing on actual instances of trouble and their outcomes it has been possible to identify official and commoner perspectives on the forestry problem, and to estimate the probable evolution of the program in the absence of more effective rule enforcement. There is no need to further belabor the point here.

Note, however, that while the trouble case data provide grounds for inference, they reveal nothing about the actual state or the evolution to date of the common property wood stock. Such data must be derived from other sources. To determine, for instance, the extent to which seedlings are preserved now as compared with the past, or the effect of the Inuwa dogari's ci da ceto strategy in relieving pressure on the Inuwa wood stock in areas he frequents as opposed to those he does not, would require a special set of biological investigations.

Costs

In Inuwa District obtaining trouble case data demands a substantial investment in time. One might much more speedily interview officials of any of the going concerns and accept their answers as definitive. But such an approach risks information distortions. On the other hand, establishing confidential relationships with commoners is not easy. Under the circumstances they have reason to suspect the motives of outsiders investigating what they recognize to be clandestine working rules from the viewpoint of some going concerns involved. Access to accurate information requires the researcher's sustained presence in the community, the confidence of local leaders, and an ability to converse in the local language, Hausa.³⁹

Even if informants are convinced that the researcher has no intention of misusing information they provide, they may be unsure that he will exercise discretion vis-à-vis officials who might interpret such conversations as a threat to their own security or positions. Finally, in a system where information is valued enough to serve as a substitute for gaisuwa in relations with traditional authorities, commoners have an incentive to conceal what they know until they feel the terms of trade are appropriate.

³⁹If one has the resources to train and support a corps of Hausa-language speakers over a long time period, the language capability may be dispensed with as unnecessary. Local researchers might develop much more, and more reliable, data over the long run.

Reliability

The "trouble" in trouble cases implies that the research object may be surrounded by an aura of tension, of normal relationships interrupted, reputations thrown into question. Informants may feel a very understandable reluctance to revive the memory of past disputes when the peace has been restored. Such pressures are strongest when the trouble case has pitted fellow villagers against each other, as frequently occurs for instance in land and family law problems. But administrative law issues may involve similar considerations. Those whose egos have been bruised in the process may restructure facts when they recount a case, embroidering or abbreviating to cast themselves in a more favorable light. Fear, or simply a conditioned reaction of prudence, can produce similar results, as when the informant has reason to believe that his revelations may involve risks of future retaliation by fellow villagers or officials.

In a system such as that under study, where very few officials and almost no commoners at the village and district levels are literate, the bench mark of a written report is often not available. The written word is no guarantee of accuracy, but it provides a starting point for investigation. When all sources must be identified through the assistance of participants in the trouble case, or of those who have close knowledge of the problems, cross-checking with such individuals for details often is the only avenue to accurate knowledge. Even then, it is unwise to rely absolutely on the detail of individual reconstructed case accounts. But this is probably unnecessary as well

as unwise. Working rules are best extrapolated in the same manner as they come to have validity as guides for human conduct: by identifying them in a substantial body of case materials rather than on the basis of isolated examples. If it is possible to abide by this working rule of thumb in the research enterprise, the investigator has the relative guarantee of grounding his observations on patterns of behavior. Eventually he can use such patterns to assess the material of particular informants.