

INTELLIGENCE, RESILIENCE AND CHANGE IN COMPLEX SOCIAL SYSTEMS: FAMINE ADMINISTRATION IN INDIA

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INTRODUCTION

This paper is a very preliminary first step in the direction of utilizing disaster research to build theories about resilience and change in the organization of social systems. Analysis of this scope, if it is to take shape, must proceed by reducing these systems, in their staggering diversity, to a few modal types, or paradigms. It is preferable that all models undergo examination through the prism of a single disaster type, at least initially, to ensure a meaningful basis for comparison. Famine [1] is the only hazard/disaster documented in considerable socio-economic detail and across an array of societal types, though systematic famine related research itself is very sparse. The gaps within this literature have thus far limited the range of social systems available for analysis to band societies, tribes, and nation-states. A literature search has yet to turn up usable ethnographic materials on chiefdoms and kingdoms [2].

Social structural, technological and ecological differences notwithstanding, the societies surveyed exhibit two distinctively different ways to organize against famine threats. One adjustment mode is diacritical for band-tribal systems. I designate both mode and system as “traditional”. Nation-states, referred to hereafter as “complex” systems, display yet another approach to famine control. The terms

“system” and “society” shall be applied interchangeably when associated with the traditional/complex dichotomy. They should further be understood as denotative of administrative organization. “Administration” will be employed in a general sense to mean the most inclusive set of institutionalized arrangements that the system provides for making public plans and policies.

Famine data for India (1858–1968) will be marshalled in developing an argument which runs as follows. In a number of significant ways, complex systems tend to cope with hazards/disasters less successfully than traditional systems. Enhanced fitness is attainable however provided the troubled system resolves on certain approaches to problem solving typifying those enlisted by traditional systems. This reorientation process entails organizational change and leads to toned-up resilience in thwarting future famine assaults.

India is a logical candidate for analysis. Several narrowly spaced famines and famine scarcities which crowd into her recent history are dutifully recorded and archived. Documentary materials combine with solid fieldwork to form some first-rate efforts relating famines to organizational change in public administration. This careful attention to the course of Indian famine is especially rewarding, for it is doubt-

ful that natural disasters have influenced the structure of any other modern complex systems quite so profoundly. I might note in passing that this exercise departs from most current societal disaster analysis addressing social change in stressing the complex system's place in regulating rather than in fostering disequilibria.

FAMINE CONTROL IN TRADITIONAL AND COMPLEX SYSTEMS

Societies gripped or threatened by famine absorb enormous organizational stresses. It is in the nature of traditional systems to obviate large-scale challenges to public order attendant on acute scarcity through the retrenchment and atomization of communal decision making. Territorial units accordingly disaggregate, interaction among them relaxes, or personnel associated with residential groups disperses. Famine, in short, constricts the boundaries and possibly dilutes the intensity of administrative activity.

These very centrifugal tendencies fostering resilience cannot be tolerated in complex systems similarly perturbed, as they work against the fabric of society. The complex system boasts an elaborate network of territorially dispersed, functionally specialized institutions serving a large, heterogeneous population. It stands to reason that the nation-state, unlike its traditional counterpart, perceives its presence in terms of something more than a discrete population, an assemblage of like parts. *It recognizes itself rather as constituting a discrete system.* The complex society proceeds from this *weltanschauung*, this premise of unity, by coming to the rescue of component sub-populations wracked by crisis. A doctrine of obligatory charity serves to activate an organized flow of resources transferred from the whole to its weakened parts. The traditional system though is not so structured as to route local problems through global channels by formal procedures.

Quite obviously then it is incumbent on the complex system to counteract separatist tendencies inhering among constituent organizations under stress, especially those minimally of the scale of local communities and bureaucratic divisions. It attempts to do this, so as to bolster its resilience, through a regime of administrative intensification. Supervisory agencies facing the spectre of famine expand the scale of their operations, their line and field staffing, their information gathering/processing capabilities, the domain of their services, and their willingness to innovate. Herein lies a cardinal point of difference distinguishing the two systems under review. Based in part on this discussion I now frame a short list of propositions that tie into an argument guiding analysis of the Indian case materials.

1. Famine, as envisioned in traditional societies, originates from relationships between people. Nature merely sets the stage for misfortune or is finessed into doing so by willful human agents. The locus of disaster causality in complex societies is shifted from the social system *per se* to technology in particular, and nature's role achieves considerable weight. And so famines appear no longer as extensions of everyday transactions among men but instead come to represent radical breaks in associations formed between men and their habitats.

2. Famine management in traditional societies is approached not as an organized effort required of all population components but exists rather as a problem to be resolved by affected groups themselves. Complex societies regard failure experienced by one unit as related to the functioning of a much broader system of units and accordingly treat local disturbances through population-extensive programs of action.

3. Complex systems move toward a state of administrative intensification under conditions of famine stress, while the traditional system copes within a progressively constricted field of collective decision making.

4. Traditional societies conceptualize famine

etiology within an encompassing social systems frame of reference, but do not, cannot and need not organize to cope beyond the boundaries of specific stricken groups. Complex systems, as noted, undertake population-wide efforts to aid disabled sub-populations. And to do so they employ cognitive models homed on a very limited range of system-disrupting factors. Or, posing the contrast in still another way, in one case a broad base of information passes through a relatively narrow organizational field to resolve a problem of diminishing complexity (by virtue of point 3). In the other instance, the organizational field is vast, the knowledge base narrow, while the problem is crecive.

Behind each contrast postulated resides a property germane to crisis management, and indeed to decision making per se. The essential ingredient is "intelligence". As the societal decision circuitry varies cross-culturally, so do arrangements devised to generate and transmit intelligence. How systems manage disaster will correspondingly depend in large measure on administrative constraints governing the production of high quality intelligence [3]. Intelligence will signify here the summoning of information for the purpose of delimiting a problem's boundaries. This matter of problem circumscription is what will be referred to as the cognitive dimension of intelligence. In so much as intelligence meshes through an interpretive sieve, it also has an evaluative aspect. Not only must a crisis problem be defined and the data mustered for solving it assessed, but techniques advancing such operations have to be brought under close scrutiny. So intelligence evinces an instrumental facet. I want to infer from the preceding chain of argument that traditional systems are more likely to possess high quality intelligence available for handling famine stress than their complex counterparts, for the following reasons.

1. The traditional administrative apparatus is relatively simple in the sense that few decision making steps and information producing units

intrude between domestic groups, their resource base and public leadership. Intelligence requirements stemming from organizational considerations accordingly are fewer.

2. Intelligence requirements are fewer and simpler in yet another way. The traumatized system short-circuits oppressive demands on intelligence by cutting away layers of communal decision making. This scaling down and streamlining of organization makes for greater parsimony of intelligence.

3. A socio-centric fix on disaster genesis allows beleaguered traditional societies fuller insight into social system factors productive of famine causality and control. And so the system enters into a rapidly deteriorating situation equipped with a fuller understanding of where it stands at any given moment.

4. Traditional societies gear up for famine by tapping into reserves of accumulated experiences that retain their value from one famine crisis to the next. The great staying power intelligence exhibits in these systems accrues largely from the fact that resource management practices and administrative organization over time change very gradually. The more mutable administrative arrangements characterizing the complex system will tend partially at least to superannuate existing intelligence.

5. The traditional system can better protect itself through precautionary planning because it possesses a more effective intelligence generating capability.

INTELLIGENCE

It will be convenient to organize the Indian materials around three intelligence parameters integral to famine mitigation.

(a) *Predictive intelligence* brings into play the detection, recording and interpretation of warning signals emitted at each stage marking a state of escalating crisis. Such operations will be certain to falter if they cannot establish benchmark data against which to measure progressive deviations in the values of in-

dicators diagnostic of famine causality and impact. Nor will stress detectors serve their prime purpose unless sensitized to disparate adjustments undertaken by assorted vulnerable groups and so gauged as to differentiate among numerous chronic and acute causes of risk. The data must be standardized for collation and comparison with information derived from still other distress tracts and prepared for rapid and efficient transmission to appropriate authorities. Intelligence of this kind buffers the system against failures of foresight.

(b) The system can minimize the risk of muddling through future disasters by reviewing thoroughly the results of decisions enacted to deal with the symptoms and root causes of famine within the zone immediately affected and repercussions such operations have on those system components not directly traumatized. Auditing defects and achievements in the existing scheme of controls should devolve on qualified individuals or commissions of inquiry and lend itself to efforts at revising guidelines, recommendations and regulations, where necessary. This *ex post facto* pattern of learning in serving as a deterrent against potential crisis is what I term *retrodictive intelligence*. Such intelligence, if flawed, can instigate failures of hindsight.

(c) The society must further obtain continuously updated readings for keeping tabs on results its risk reduction strategies actually achieve. Warranting surveillance here are the productivity of particular projects (e.g. poor houses, soup kitchens, movement to frontier well complexes) and the adequacy of organizational arrangements devised for running them as planned. Steering operations require that project personnel and supervisory staff be conversant with instructions pertaining to technical operating procedures (how, when and where to activate and maintain the project and who shall draw benefits from it); performance standards applicable to all personnel; and criteria for determining their adherence to these standards. Moreover, instructions for

procuring aid must be extended in a suitable manner to targeted welfare recipients in order to make relief work. Measures expedited to ensure this kind of vigilance can be termed *operational intelligence*, which if wanting, may result in failures of control.

Control is a necessary complement of intelligence. By control I mean premeditated action enforcing a plan or policy. How well a system copes with stress cannot be ascertained in the final analysis if the interplay between these two elements is ignored. This is a tall order for a short paper, and so I confine discussion to intelligence alone. In skewing the angle of analysis thus, my remarks concerning information channels by which grain rationing abuses or slipshod railhead to warehouse grain transport methods are detected, say, will sidestep the policing operations worked out to contain specific violations. Or I will refer to nutritional, health and geological surveys without bothering to indicate the programs they lead to. But even inquiry delimited in this vein should not vitiate the case being made for using famine settings as windows into processes promoting resilience and change in social systems.

INDIA 1858–1908 [4]

Famine Causality

India is a predominantly agricultural country. Until quite recently the acreage benefiting from large irrigation works was very limited. The food production system was almost totally at the mercy of the summer and winter monsoons. Vicissitudes in the phasing of the rains created periodic food shortages. Yet only fourteen famines are on record between the eleventh and eighteenth centuries, and these were fairly restricted in area. During the British East India's reign, between 1765–1858, however, "the country experienced twelve famines and four 'severe scarcities,'" and by 1860–1908, "famine or scarcity prevailed in one part of the country or other in twenty out of the total of forty-nine years" (Bhatia, 1967: 8).

With the *Pax Britannica* came a sharp downturn in India's resistance to agricultural shortfalls that eroded the quality of rural life. Contributing to this trend were a rigid and burdensome system of land assessments and revenues, the burgeoning of usury and landlordism, decline of cottage industries and retarded industrial growth, and government's unwillingness to regulate commercial enterprise. Rapid population growth and several closely spaced droughts hardened the pejorative impact resulting from these tendencies.

Land revenues financed a host of undertakings that enabled government to fulfill its responsibilities as a colonial entity. These included the provision of support for British soldiers stationed in other parts of the empire, for the Anglican Church, and for the governance of its own domain. Disbursements for famine relief programs and for investments in irrigation projects and the railroad system later enlarged its fiscal burdens. Taxes, especially during scarcity seasons, severely depleted agricultural surpluses traditionally enjoyed by the subsistence farmer as a hedge against privation.

British commercial hegemony exerted a stranglehold on indigenous industry. With the laying down of roads and rail lines, cheap machine made imports flooded rural markets. Few artisans could match the prices brought by foreign goods nor reproduce items that replaced their own. Unfair trade agreements granted British merchants further upset local industrial viability. Moreover, vested interests abroad, in raising the spectre of ruinous foreign competition, went to great lengths to suppress any prospects for an industrial revolution in India. Lancashire industrialists, for instance, lobbied successfully against overseas textile mill construction and blocked the Indian Government's hopes of abolishing import duties on Lancashire products. Throughout the latter part of the century British exports were exempted from customs levies and transit duties, though Indian goods exported to the

motherland absorbed heavy duties. India was eventually reduced to exporting raw materials while it saw its own potential as an exporter of finished products stifled. Also affecting rural life was the conversion of vast stretches of farmland to commercial use in order to expand production of such export products as indigo, tea, cotton and sugar. Acreage available for domestic food consumption subsequently shrank and vast territories became food deficit zones during bad drought years.

The trends just cited substantially reduced modal per capita land holdings. Artesians commonly practiced part-time agriculture to make ends meet. With the collapse of small-scale manufacturing and the absence of suitable employment options, vast numbers of craftsmen fell back on the land as small holders or share croppers joined the growing ranks of drifting day laborers. Urban industry, still in its infancy, was unfit to accommodate large numbers of job seekers. On this point Bhatia has a penetrating observation to offer

... in India the normal economic process was reversed. In England and the other European countries in the nineteenth century, labor was released from agriculture to provide wage labor to the expanding economies; in India, the manufacturing industry threw out labor to be absorbed in stagnating agriculture (1967: 22).

Mounting pressure on shrinking agricultural resources dovetailed with the unregulated commercialization of land sales to separate the peasant from the soil. In pre-colonial India, outsiders rarely got opportunities to buy up village lands. Colonists, however, introduced the concept of landlordism. Land assumed a market value, was freely transferrable and generated profits through rents. Outside investors could now gain a foothold in the village domain by offering to buy out or extend loans and credit to the peasants forced to sell their land or mortgage productive property to pay taxes and purchase food during famine years.

Landlords and money lenders advanced credit and loans often at extortionist rates of interest. Bhatia notes that;

after making payment to the landlord and the state, and meeting the current expenses of cultivation, what was left for the [farmer's] produce of land was to fill the coffers of the money lender (*ibid.*: 57).

The judicial system abetted usury by making debt bond renewal occur at short intervals and by diligently prosecuting defaulters. Government did not take much initiative in prevailing upon money lenders to relax credit restrictions, to suspend interest payments, or to lower interest rates during famine periods. Authorities were quite content to side-step a potentially enormous administrative task by letting the private sector handle credit transactions. Nor did the state care to intervene in landlord–tenant affairs. Not until the turn of the century were any serious official attempts made to prohibit arbitrary rent increases.

Land usually passed from farmers to non-agriculturalists who were typically urban landlords more concerned about getting rents than in fostering efficient use of land, labor and farm equipment. This state of affairs surely did little to stimulate agricultural productivity. Sharecroppers, tenant farmers, wage laborers and small holders who were deterred from enjoying the fruits of their labors were hardly prepared to experiment with agricultural improvements.

Famine conditions were closely linked to market forces, pushed by an expanding mercantile class, that generated prices catapulting foodstuffs beyond the reach of many citizens. Government left the grain trade pretty much to the devices of middlemen. Subsequent hoarding, wild speculation and wholesale export of supplies away from distress tracts greatly inflated food prices. Time and again traders were exporting wheat and rice from a needy region while government would be importing it. It was not until the Bengal famine of 1943 that firm price controls and state monopoly of private trade came into force during food emergencies. Nor was the price situation alleviated by government grain shipments abroad. Indeed, wheat was India's largest export commodity until

1914. Government was a culpable agent on still other fronts. Imperfections riddling the administration of relief transmuted inconvenience into misery for many. I consider this issue shortly.

Famine Management

The imperial government dealt with famine and food scarcity largely on an ad hoc, trial-and-error basis between 1858–1878. Non-official organizations were suppressed for fear they might spawn entire classes of welfare malingers. Gratuitous relief was thought not to be the responsibility of government, and public works programs were still few and poorly organized. Government's role in controlling disasters had yet clearly to be articulated. The relationship between tenancy statutes, the behavior of grain markets, employment elasticities and other interrelated factors figuring into the famine question were understood only partially and vaguely. Nor were the principal sufferers of famine properly identified or the measures needed to relieve distress and prepare timely schedules for precautionary action worked out carefully. Moreover, nothing approaching an adequate ground plan for administering relief had yet been devised.

The first nation-wide Famine Commission was formed in 1880 to rectify these problems. The commission's deliberations resulted in a Provisional Famine Code, framed by the central administration, which would serve as a model for helping provincial administrations formulate their own codes. Each province possessed a certified code by the end of the decade. These documents made sweeping recommendations for strengthening state and local administrative relief operations and they dramatized inherent linkages between famine policy and larger issues surrounding rural development and political reform. It was stipulated that the codes would be revised whenever a famine revealed in them any serious defects. The codes in fact underwent revision following each successive famine.

Detailed attention to predictive intelligence gathering techniques, such as village level agro-economic and cadastral surveys, the collection of vital statistics, weather reports and so forth, or the steps government took to monitor the working of its relief programs (operational intelligence), are considered only very superficially in the historical studies that cover the era. In getting around this problem, I consider the cognitive dimension of predictive intelligence alone, that is the orientation displayed by administration in familiarizing itself with the extent and causes of famine stress. I proceed by describing several legislative and technological accomplishments furthering disaster control in as much as they derived and promoted predictive intelligence operations. And though the monitoring and reviewing of operational intelligence cannot be detailed here, owing to the spareness of available information, I do describe administrative structures evolved to accommodate such functions.

a. Predictive intelligence

In waging campaigns against disaster, the government had first to identify potential famine communities. By the third decade of its rule, the imperial government could specify the most risk-sensitive population segments and their special needs from among a vast array of tribes, castes, classes and religious sodalities. By 1900 all famine codes incorporated relief provisions tailored to alleviate misfortunes apt to arise among orphans, artesians – particularly weavers – *pardanashin* women, hill and jungle tribes, and small-scale farmers and landless tenants. District officers presiding over scarcity tracts were expected to assess the status of all such groups within their jurisdictions, though it is unlikely their enquires followed uniform and rigorous guidelines or were supervised systematically from above. Moreover, the Famine Commission of 1901 put forth a territorial system classifying victims for purposes of administering relief:

In the case of an early local and isolated calamity, relief should proceed from the particular to the general, i.e., field to field enquiry should be made and suspensions should follow the results of such enquiries while in case of widespread crop failures, i.e., general estimates of homogeneous tracts or groups of villages or larger territorial areas should be made and upon these estimates uniform suspensions should be worked out (Srivastava, 1968: 282).

Tax remission-worthiness in the first case was to be determined by village surveys encompassing all resident homesteads.

Government also got more insight into disaster causality. By the 1880s the theory that famine essentially derived from work shortages shifted to the conviction that the precipitating cause instead was one of food scarcity. This complemented a deepening concern that famine and famine relief were undermining village integrity. Keeping villages intact as units of production was expressed as *sine qua non* in all famine codes. Several steps were taken to preserve the economic viability of the village community. Small village-level public and private works came to be favored over large, distantly placed centralized projects. The early colonial policy approving emigration during emergencies was replaced by gratuitous relief measures and village aided public works schemes intended to discourage population movement. Remote cattle relief camps had been set up formerly to handle fodder scarcity. With the framing of the codes, the government began seeking methods for growing fodder locally or for importing it. And legislation was enacted granting jungle tribes proper access to adjoining forest preserves during famines.

By 1910 the government had shifted several degrees nearer to recognizing the essential connection between famine and chronic food scarcity. Official anxiety over the poverty issue is mirrored in numerous amendments and revisions in successive famine codes. The Land Improvements Act of 1883 and the Agriculturalist's Loan Act of 1884 are among the most important pieces of legislation enacted in this area. Both documents served to improve rural economic conditions through year-around

assistance programs. Government was ill-prepared and ideologically adverse to preempting the moneylender as the prime agent of rural credit. Despite official intransigence on this score, the act of 1884 allowed poor farmers government loans for seed and cattle purchase on easy terms during normal times and advances for meeting subsistence needs during famine. Regrettably though the loans usually turned out to be too small and poorly timed. The Land Improvement Act aimed at furnishing generous loans that would give big landowners the impetus to capitalize their holdings – viz. by having wells dug and irrigation channels constructed – thereby stimulating employment opportunities for the legions of destitute.

The Land Revenue Resolution of 1902 sought the reduction of rural indebtedness through famine phase revenue recisions and reductions. Various provinces passed tenancy and rent acts during the '80s. Many of these, through amendment in the early 1900s, extended occupancy rights to certain classes of tenants and interdicted landlords from raising rents arbitrarily. Several provisions were drafted prohibiting permanent alienation of land from farmers to entrepreneurs. A revitalized Famine Relief and Insurance Fund, ± 1881, guaranteed funding for famine relief and public works projects. The many charitable relief funds and trusts sanctioned by government, that sprang up around century's end, became conduits providing disaster victims money, blankets, food and seed grain concessions. Moreover, the Cooperative Credit Societies Act designed at the recommendation of the 1901 Famine Commission laid the groundwork for the country's first rural credit cooperatives.

Government's perception of the famine problem still remained blinkered on a most critical front – the grain market – by a steadfast obedience to classical economic precepts. Controlling prices, regulating interstate and transnational transport, restricting profiteering, requisitioning, building reserves and storage

facilities, and formulating rationing schemes were programs in the domain of foodgrain policy not entertained seriously until the Bengal famine climaxed several decades later. Accordingly, the food distribution process did not rank prominently as an issue mooted in various famine inquiries.

In subscribing to the moral and fiscal scruples blended by political economists of the likes of Adam Smith and J.S. Mill, government was slow to appreciate the ultimate assets accruing from non-official relief organizations. In them was seen the hidden hand of welfare dependency. This repressiveness eased somewhat during the 1880s, and several such organizations started up in famine-prone provinces by 1900. But government's reservations still lingered on as evidenced by the absence of official efforts to exploit invaluable grass-roots knowledge acquired by these organizations or to utilize their operating procedures as models upon which to build stopgap intelligence pipelines between the village and district headquarters. Several decades were to pass before official and non-official efforts would unite.

b. Retrodictive intelligence

Central and provincial governments appointed special commissions of enquiry following every famine. The commissions scrutinized documents prepared by officers superintending local relief works, and site visits might be made by way of augmenting information presented in these reports. Reports were reviewed against the backdrop of existing codes. In this manner the codes could be revised and updated with the passing of each new crisis. Task force recommendations transcended immediate calls for perfecting famine relief policy. Rural indebtedness, food production, industrialization, transportation, public health, the bureaucratic organization bridging center and periphery, and land ownership all came up for deliberation repeatedly. Measures proposed and blueprints implementing them were packaged together.

There is no mistaking that retrodictive famine intelligence enshrined as it was in these codes acted in fomenting major procedural and institutional reforms in imperial government. And it brought numerous involved issues surrounding citizen's rights and government responsibilities into constantly sharper focus.

c. Operational intelligence

The famine codes were a springboard initiating the overhaul of administrative structures revealed by a disastrous event as creaky and ineffectual. I touch on only a few intelligence-related organizational innovations highlighting this era. It is remarkable that disaster affected provincial administrations could undertake radical steps to rectify inept emergency phase performance by a wholesale revamping of public institutions. Such was the case when the Bengal Government failed to come to grips with the devastation wreaked by the Orissa Famine of 1866. On the central government's investigation of this matter, Misra notes

The entire issue of inquiry boiled down to this: how was the government of Bengal to be strengthened so as to enable it to deal with any state of emergency and the extended function of such a state? Was it possible through a council form of government and a separate legislature, or through a Lieutenant Governor vested with executive legislation . . . ? (1970: 268).

He goes on to observe that

The story of the formation of Assam into a separate province is thus significant in that it shows how the failure of the government of Bengal in the Orissa Famine lay at the back of the whole of its administrative reforms of the 1870s. The very creation of the province proceeded against the background of that disaster (ibid.: 274).

One such reform enlarged the authority District Officers (DOs) exercised over the several ministerial extension offices housed in their districts. With regionally centralized famine administration came an increasingly decentralized approach to famine control on the national level. And indeed, the district or division evolved as the linchpin for public admini-

stration, irrespective of famine conditions. The famine codes crafted in the 1880s ushered in another advance bolstering local famine administration. Each district was divided into "circles" arranged to facilitate gratuitous relief to villages, to investigate and report on economic conditions observed among residents, and to evaluate relief measures. Circle organizations was to be activated upon an official declaration of crisis. Its head, the DO or Divisional Commissioner, was invested with a staff of circle inspectors responsible for visiting constituent villages, weekly, filing reports with the DO, and bringing village leadership into orbit with administrative programs. Village leaders were expected to assist civil servants with the administration of relief and the maintenance of law and order in their communities. The circle system came widely into force by the turn of the century. But it did not really jell in most areas for some decades to come.

The famine codes of 1880 fostered a breakthrough in food administration profoundly enhancing India's food production in the years ahead. A separate department of agriculture was recommended with field divisions at the provincial level: "This measure was proposed as a means of relief from famines." (Misra, op. cit.: 123) By the early 1900s, all provinces had operating branches. The Department was envisaged initially as a primary clearing house for demographic and agronomic statistics, these to be used as tools for forecasting and relieving famine distress. It was to collect, analyze and report through routine tours of village inspection all aspects of food production. District authorities were to be apprised of the contents of these documents and instructed to work closely with agricultural officers during famine sieges. Organizational intelligence was further boosted with the establishment of agricultural experiment stations, colleges and demonstration farms in the first few decades of this century. And finally, the codes were directly behind the expansion of roadways, rail networks, and large-scale irrigation projects.

The era of virulent, province-wide famine outbreaks virtually ended by 1910 [5]. Far fewer people died from starvation related causes, forfeited productive property, or resorted to migration because of famine than in the formative phases of colonial rule. Advances in administrative intelligence operations were certainly not the only remedial factors at work, but they did dilute considerably the severity of famine problems. Yet there was still much progress to be made here. Government did not usually declare a state of famine emergency until serious damage had been done, and disaster compensation was still very inadequate on several accounts. In many regions vigorous prosecution of emergency relief guidelines and tightly knit village-to-district chains of command enabling such action, through the circle system for instance, had yet to materialize. No less significant was the very limited headway made in eradicating the chronic poverty underlying the country's susceptibility to catastrophe.

THE BIHAR FAMINE 1966–67 [6]

Hail storms and rainfall scarcity affecting much of Bihar during 1965 and an erratic south-westerly monsoon the following year severely reduced crop yields over much of Bihar, the second most populous state in India. Prices and emigration were already on the upswing by June 1966. Rains during the following seasons failed and in April 1967, a state of famine was officially declared. Before the drought had run its course, some 47.5 million persons in 89,000 villages covering 41 districts were affected. Extensive hunger notwithstanding, wide-scale death, disease, migration and property losses were averted, largely through effective government intervention.

a. Predictive intelligence

Government began gearing up its intelligence maneuvers as early as June–July 1966. A nutritional survey was made in sample villages

situated within the zone of peril. Questionnaires revealed that dietary conditions in the countryside were deteriorating noticeably. Another survey showed that houses were being mortgaged under stress. As scarcity intensified, random surveys of municipal dispensaries pointed to a sharp rise in such diseases as TB, syphilis and dysentery. Several social research institutes conducted economic reconnaissance studies. The Bihar Relief Committee and the District Consultative Committee organized their own fact finding missions in the fall. The latter met with several research teams to hammer out a comprehensive plan of action, which was to come in handy later on. Two teams sent by the central authorities made early on the spot assessments and their findings were responsible for a blockwise relief program. The Finance, Food/Agriculture and Planning ministries arrived in October and delivered advice for putting district administration on sounder emergency footing. And control rooms were set up at various district headquarters later in the year to identify “danger signals of drought” delineated in terms of yearly and monthly rainfall and crop acreage over the previous ten years, crop yields since 1954–55, monthly price trends for the past three to four years, crime rates under famine conditions, statistics on migration of agricultural workers taken at three railroad stations, and sales recorded for land sold or mortgaged under duress. General socio-economic background data for villages, blocks and districts were also collected and analyzed. The progression of food scarcity in Bihar was closely monitored throughout the emergency.

b. Retrodictive intelligence

A famine evaluation seminar was held in October 1967 following the end of the famine emergency. Eighty-five delegates attended representing 25 voluntary and government agencies. Many recommendations for perfecting relief programs in future famine crises

emerged from these proceedings. The National Committee on Drought Relief also ran evaluation workshops. Field agencies in cooperation with the Tribal Research Institute undertook block-level inquiries, “to assess the working of development relief programs and to institutionalize the lessons of the famine in order to avert a similar crisis in the future” (Singh, 1975: 56). Many committees and agencies that met to review the effectiveness of famine control programs spoke to the larger issues of agrarian reform and economic development. For instance, the All Party Conference of October 1967 addressed moneylending, rural income polarization, wages, tenancy laws, irrigation and a host of other pressing issues the famine disclosed. Central authorities acted rapidly on a plan to investigate the irrigation potential of selected districts

Later a reconnaissance of soil types was launched; a comprehensive blockwise survey of the potentialities of soil conservation and minor irrigation and of cropwise inputs followed. This survey constituted the groundwork of the masterplan for the development of this backward region in the light of the experience gained during the famine. This masterplan was ready in December 1968 (*ibid.*: 135).

c. Operational intelligence

The famine codes designate district administration as the bulwark behind official disaster management policy. I briefly describe this structure because it provides the scaffold supporting operational intelligence operations. District bureaucracy in Bihar is organized hierarchically. At its apex is the district officer (DO) whose responsibilities take in the supervision of land revenue collection and the administration of scheduled tribes and castes. As chief development officer the DO oversees technical department activities related to economic development. Among the agencies participating in such programs are public health, community government, public works, and district supplies. As district magistrate the DO is the highest local official enforcing law and order.

The next descending administrative layer, the sub-division, is a replication of administrative structure at the top. Sub-divisions parse into blocks. Palamau was subdivided into 25 such units at the time of Singh’s study. Each block falls under a Block Development Officer (BDO) who superintends programs carried out by extension officers working in such areas as animal husbandry, agriculture and village level administration. A circle inspector handling land revenues, and a medical officer, are among the BDOs lieutenants. The Block Officer’s duties correspond to those entrusted to the DO and the sub-divisional officers, writ small. The block encapsulates a network of circles (ca. ten per block). This lowermost echelon of development administration comes under the supervision of a Village Level Worker. Two *panchayats* (local elected bodies) ordinarily constitute one circle. Ten to twelve *panchayats*, normally presiding over a population of 5,000 each, form one block.

A great battery of measures called for by the famine codes to create suitable operational intelligence were translated into action through agencies of many kinds. And many protective steps not included in the codes came into being. On the block level, the BDO was required to get a sounding on the changing status of economic opportunities for all households in circles under his supervision, to file reports on household surveys conducted by his staff, and to disseminate within the villages intelligence concerning the location, persons eligible to benefit from, the wage rates, and the task structure of relief works. The BDO had also to put himself at the disposal of fact-finding missions dispatched to the field by assorted relief committees, and he had further to.

visit each village in his circle once a week or as often as the district office may direct; to test, by frequent personal inspection, the list of persons in receipt of gratuitous relief; and to see that relief is being distributed to them timely; to forward the weekly return in form ix and to ascertain that relief has been distributed in the manner prescribed (*ibid.*: 63).

Apprising superordinates of any evidence of noteworthy upturns in sickness among persons or livestock and conferring with veterinary and medical officers about appropriate remedial actions, and keeping continuously updated records for water, fodder and seed reserves were among the numerous other responsibilities entrusted to this officer.

Circle officers were also saddled with a heavy load of assignments. Maps had to be drawn showing the location of all relief projects and statements prepared that indicated for each village the population composition and the number of indigents, agricultural laborers and children under fourteen years of age. Checks had to be made for ensuring that all pre-adolescent children received milk rations from distribution centers, that all indigent persons were in possession of red cards, that fair-price shops got their quota of foodgrains, and that all eligible families were being presented with the opportunity to obtain agricultural loans, and so forth.

The famine codes did not supply guidelines for coordinating decision making among administrative bureaus and between the latter and non-official agencies: "coordination in times of distress was an uncharted area" (ibid.: 68). And so the District Consultative Committee, the District Development Committee and the District Relief Committee were activated early on to work out methods for institutionalizing such coordination. No focal organization which would meet the challenges of articulating the planning and program implementation for voluntary agencies existed in the codes. The Bihar Relief Committee was constituted in 1966 to subserve this end. It met every Tuesday from January to October 1967 to decide on matters ranging from the distribution of free gifts to grain storage and transport arrangements. The Bihar Relief Committee evolved a highly complex structure patterned after the pyramidal blueprint of the district administration.

District level coordination came about

through: weekly or fortnightly meetings among sub-divisional officers; the BDO's monthly meetings; the District Coordinating Committee's quarterly meetings; weekly meetings between the chief engineer from the Public Health Engineering Department and representatives from emergency water supply organizations. In addition, the DO's coordinating committee (attended by the BDOs) convened once a fortnight, and the Technical Officer's Coordination Committee scheduled fortnightly conferences. Sub-divisional officers met regularly with individuals representing non-official organizations, and the sub-divisional coordinating committee held weekly meetings with the BDOs. This proved a vital link in the intelligence chain. The BDOs met weekly with circle officers and fortnightly with staff coordinating committees. The latter worked out to be a critical channel of communication with remote field agencies: "It helped to explain the latest instructions on famine relief, assess the situation, and prepare reports and returns" (ibid.: 70).

The district level coordinating committees compiled a list of 33 instructions, geared to ginger up famine relief operations, which

... fixed personal responsibility and threatened disciplinary action if the functionaries did not produce the results within the given time. While these instructions set the tone and the perspective, the functionaries also needed to be trained and 'indoctrinated' in relief. In order to give a sound grounding in relief matters, the coordination committees were particularly activated to explain, reemphasize, [and] clarify the instructions to the farthest agency. This was done regularly, often by an officer deputed from the headquarters (ibid.: 71).

Later in the year a cabinet level relief coordinating committee formed and subsequently arranged to meet weekly for the purpose of making high-level decisions covering all aspects of famine control. This body consisted of ministers from departments participating in the crisis.

Administrative self-policing took many forms. Block level officers held prompt enquiries into complaints: "A remedial cell set up at the district office functioned around the

clock” (ibid.: 73). Flying squads consisting of private and district relief agents operated the block, sub-division and district levels. These reconnaissance units made surprise visits to relief installations by way of checking up on their performance. To keep the population informed, district staffers circulated handbills describing available relief programs and a public relations department was formed to distribute pamphlets to do likewise and to hold weekly press conferences.

Numerous other miscellaneous steps were taken for beefing up operational intelligence gathering. More supply inspectors were assigned to grain warehouses and block distribution points as relief operations reached full stride. Efficiency was imparted to the grain transport process through a blockwise system of checks

. . . dates were fixed for transporting of grains from sub-divisional to block godowns depending upon the capacity of the latter; responsibilities of supply officers were fixed and rigorously enforced . . . Preparations for the movement of grain would start as soon as the stock in block godowns dipped below twenty-five percent of the normal needs. At the blocks, tight schedules of the movement and lifting of foodgrains from the block godowns to fair-price shops or other distribution agencies were laid down and enforced rigorously (ibid.: 93).

Fair-price shops were pivotal in arrangements made for foodgrain distribution. A ten point program was devised to monitor their stock of grains, prices, quantum of rations provided per family and many other kinds of information. Dwindling water supplies in some districts moved authorities to dispatch geological field teams to locate areas of water scarcity. Lists and maps of villages compiled by block staff provided a starting point for these teams. Finally, the important role played by student volunteers and voluntary organizations should be stressed.

SUMMARY

A series of large-scale famines accompanied British rule in India. Early development admini-

stration was not set up to mount effective relief campaigns and it was saddled with a very imperfect grasp of Indian food scarcity problems. Yet the government made remarkable strides within a mere generation in its efforts to mitigate acute food shortage, and it achieved some modest progress in chipping away the structural causes of this problem. Indeed, only one major famine flared up after 1909 despite the numerous crisis alerts sounded by several states. The sharp decline in famine outbreaks during this century is attributed by the sources in no small measure to more effective disaster abatement planning.

The provincial famine codes became central to administrative famine fighting strategy. The codes supplied a major impetus to the intelligence operations already discussed, and they ensured arrangements for committing information so acquired to ‘institutional memory’, and for institutionalizing programs to monitor famine hazard indicators on a permanent basis. Moreover, it was through the codes that shadow disaster relief administration evolved. This emergency system, activated when crisis appeared imminent and shut down once the declaration of famine was officially withdrawn, made for an extraordinary degree of decentralized decision making.

The district officers and high ranking ministry field staffs, at least in Bihar, were entrusted with supervising many important relief operations. The DOs had the leeway to delegate numerous routine responsibilities and many emergency tasks to lower echelon staff. Under these provisions, high ranking district officials could focus more fully on urgent supervenient duties. This diffusion of authority, all the way down to the village level, and the planned coordination of village staff, community leaders, and representatives from charitable organizations, served to concentrate administrative decision making close to the grass-roots level, thus individuating it more than ever before, village by village. This dispersion of administrative resources, even though carried

out within a largely centralized framework, was functionally comparable to the traditional pattern of hazard/disaster response.

The codes were steeped in the premise that famines arose because of human failures and could be thwarted by the judicious manipulation of institutional controls over people and food. This recognition of famine as a social process was a critical factor shaping official emergency preparations several months before the government declared a state of disaster in Bihar. Yet had India not suffered badly through many earlier famine crises, and had she not reacted by instituting remedial procedures and organizational changes in her bureaucratic machinery through, among other things, improved intelligence operations, it is probable that famine would have been much more prevalent during this century than in fact had been the case.

NOTES

- 1 Most students of famine agree that this phenomenon essentially is a matter of extreme food scarcity that, for whatever reason, is manifested by starvation, malnutrition and death on a massive scale. Moreover, large-scale property losses are characteristically associated with famine.
- 2 The propositions set forth in this section derive from analysis of ethnographic studies of the Gabra (Kenya/Ethiopia), the Ik (Uganda), Australian Aborigines, Turkana (Kenya), South African Bushmen, and from economic histories of Czarist and early Soviet Russia, colonial and republican India, pre-revolutionary China, potato blighted Ireland during the late 1840s, and northeastern Brazil over the course of the last one hundred years. The Tikopia corpus is the only chiefdom-level account of drought/famine response that is at all detailed, but it has little to say about pre- or early colonial adjustments. However, Spillius (1957) does suggest that dispersion of the population to other islands seems to have been the most commonly adopted expedient for relieving pressure on shrunken food reserves following the action of a natural disaster agent. This would conform in general outline with the traditional system pattern of coping.
- 3 "High quality intelligence", a term borrowed from Wilenski (1967: viii-ix), signifies intelligence which is clear, timely, valid, reliable, adequate and wide-ranging.
- 4 The principal background materials for this section are Loveday (1914), Misra (1970), Bhatia (1967), and Srivastava (1968).
- 5 I would be remiss in not mentioning the Bengal famine of 1943 (cf. Knight, 1954; Mukerji, 1965). The only major famine to visit India after the first decade of this century, it resulted in as many as 1½ million deaths and massive land divestment. A set of anomalous circumstances forced this setback in what was otherwise a progressively more effective system of food crisis safeguards. Of major importance was the country's involvement in WW II and, almost simultaneously, the administrative disarray accompanying its move to the threshold of independence. When the war broke out, India was a farrago of some dozen semi-autonomous provinces, each with its own prime minister and cabinet, and hundreds of independent princely states. Bengal was a chronically food deficient rice growing region. A series of droughts and a cyclone combined with entrenched rural poverty in triggering extensive provincial food shortfalls. The food situation became cause for alarm with the fall of Burma, India's chief supplier of rice. The Bengal government was inadequately poised for crisis. It was the least bureaucratically evolved of all the Indian states, particularly at the sub-district level. The absence of village-level revenue staff and poor articulation between circle and village governance precluded a timely and well organized flow of local intelligence to district headquarters or a workable plan for village relief. The Bengal government complicated matters by stubbornly refusing to accept central advice and assistance and allowing party factionalism to sabotage the concerted planning needed to regulate grain trading. The absence of uniform, country-wide price controls, procurement policies and rampant, inflation causing price-fixing, also set the stage for famine. The Indian grain trade fell under permanent state control towards the end of the war. By compelling the Bengal government to initiate controlled procurement of stocks backed by requisitioning, license wholesale dealers, install rationing machinery, and rigorously enforce all such measures, in part through military assistance, central government succeeded, belatedly, in conquering the famine.
- 6 The following account leans heavily on Singh's (1975) definitive study of Palamau province. Other materials drawn on in preparing this section suggest that the administrative pattern of response described for Palamau was probably typical for most other parts of Bihar (cf. Berg, 1971; Gangrade and Dhadda, 1973; and Central Institute for Research and Training in Public Co-operation, 1969).

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