Review article

The conservation movement in Zimbabwe: an early experiment in devolved community based regulation

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This paper describes how the Zimbabwe Natural Resources Act of 1941 nurtured a civic landholder-based conservation movement, the Intensive Conservation Area movement (ICA). This is not recorded in the published literature. It provides a rare insight into the efficacy of environmental regulation that legally devolves use rights and regulatory responsibility to communities of landholders, and favours democratic processes above top-down regulation. The main message is that natural resource governance is effective when (a) landholders are genuinely empowered with the rights to use and manage natural resources provided, and (b) this occurs within a framework of devolved and collective self-regulation through structures built democratically from the bottom up. The effectiveness of these structures is surprisingly sensitive to any reduction in democratic control. The ICA movement anticipates, and is aligned with, the emerging theories of common property, scale, management, systems thinking and new institutional economics. These have common roots in the principle that human affairs and complexity are best managed where hierarchies of nested institutions serve the bottom layers, not the top. This suggests that entitling landholders, including communities, with full choice to use and management natural resources, and relying on local collective action to control environmental abuses or externalities, will strengthen future approaches for natural resource governance, including for wildlife and southern Africa.

Keywords: Zimbabwe, wildlife governance.

INTRODUCTION

Starting with the Natural Resources Act of 1941, Zimbabwe initiated a bold experiment in devolved and democratic natural resource governance on private and communal land, the Intensive Conservation Area movement (ICA). This story is largely invisible because, despite widespread local acclaim, it has not been documented. We rely on a few sources in the grey literature and personal discussions with its leaders and participants over many years to capture the lessons of how and why it worked over five decades, and what factors later undermined it.[endnote i]

People are much more familiar with Zimbabwe's pioneering CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) programme, which was exceptionally bold in giving to communities the rights to use, manage and benefit from wildlife. The well-crafted nature of CAMPFIRE is also noted in the literature (*e.g.* Borgerhoff Mulder & Coppolillo, 2005). However, people seldom ask where these ideas, or the confidence in entrusting wild resources to local people, came from. In fact, as we will explain, Zimbabwe had been experimenting with devolved conservation for over fifty years, in ways that were remarkably positive and uncontested. From the very start, conservation was managed as a civic movement which recognized that systems needed to be built from the bottom up, and to serve the interests of the bottom in terms of landholder's livelihoods, productivity and environmental sustainability.

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These bold policy experiments preceded much of the literature with which we are now familiar, giving rise to 'principles' that were intuitively derived and absorbed as societal norms long before they were codified by scholars. Key examples are the importance of persuasion rather than compulsion in environmental regulation (see below), and the norm of maximizing the amount of wildlife income reaching the landholder. In the discussion we will show how this conservation movement anticipated Ostrom's design principles for common property resource institutions by five decades (Ostrom, 1990), and was true to and may well have stimulated Murphree's principles of scale (Murphree, 2000), in addition to new theories of organizational management which emerged in the 1960s.

Although the principles and norms spawned by the ICA movement are almost invisible in the literature, they have spread quietly but widely, perhaps because they have universal import. It was only in the 1970s and 1980s that these began to be codified. A good example is the 'CAMPFIRE principles' (Child, 1996; Murphree, 2005). Here, we see the emphasis on devolved governance and local economic benefit learned through the ICA movement being absorbed into the 'CAMPFIRE Principles'. These ideas then spread through the region through the sustainable use movement and community conservation, and were re-tested and improved. They also spread globally with almost identical wording to that used by the sustainable use movement in southern Africa (SASUSG, 1996, 2003) re-emerging in the *Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity* (CBD, 2004).

The majority of this paper focuses on the history of the ICA movement, but the importance of this story lies in its theoretical interpretation, and in its insights for the challenge of the cross-scale governance of natural resources. While the paper focuses largely on private land, we also discuss communal land. We have had to tread carefully to avoid becoming embroiled in Zimbabwe's highly contested, emotional and racialized history, but have persisted because this example has important lessons for natural resource governance. Namely, that local communities resisted top-down natural resource governance even when it was technically sound, but were appreciative of the much more inclusive and democratic approaches exemplified by the ICA movement.

We use the experience of Zimbabwe's natural resource movement to theorize about resource governance. The norms guiding this movement are congruent with theories as wide-ranging as systems thinking, common property theory, new institutional economics, governance and management theory. This suggests that the success of the movement was no accident and that it provides important lessons for contemporary governance of land and wild resources, including the emerging Landcare movement on private land (Curtis & Lockwood, 2000; Mulder & Brent, 2006; Prager & Vanclay 2010), and community conservation.

A BRIEF HISTORY OF LAND TENURE AND USE IN ZIMBABWE

Natural resources, through agriculture, mining, and wildlife provided the mainstays of Zimbabwe's economy.* The use and abuse of these renewable resources caused enlightened concern from an early date, with demographic and consumption pressures making resources susceptible to what is generally perceived to be degradation, including loss of grasses, trees, soil and soil water.

Prior to white settlement in 1890, the indigenous black population numbered only about half a million people, livestock numbers were low and cultivation was by hand. Pre-colonial settlement favoured light granite soils because these were easily tilled by hand, and was centred on Great Zimbabwe and a crescent in the east and south of the country where rainfall was also reliable (Zinyama & Whitlow, 1986).

White government, in the form of the British South Africa Company under Royal Charter from Queen Victoria, coincided with a reduction in warfare, and led to the emergence of a money economy, modern agricultural technology including mould-board ploughs. Together with modern medicine and veterinary services this led to the rapid growth of the human population and livestock after the decimation of livestock and game in 1896 by the rinderpest pandemic. Cattle (*Bos taurus*) increased some 88 fold in 33 years from an estimated 28 000 head after the pandemic, to 2.47 million in 1930 of which 1.56 million were black owned (Southern Rhodesia, 1932). By 1939, the indigenous population had trebled. There were 91 000 ploughs, and ecological deterioration was widespread and increasing (Gorden-Deedes, 1961) as resource scarcities intensified. White farmers also diversified and intensified production,

*We refer to the country as Zimbabwe, although it was previously called Rhodesia (1965–1980) and Southern Rhodesia (1898–1965)

causing further degradation of the resource base by the 1930s (Kwashirai, 2006) as marketing opportunities increased (Vincent & Thomas, 1961).

By the 1930s there was a dual land tenure system in Zimbabwe that encapsulated racial inequalities. Colonial era division of land between whites and blacks was initiated by the British Government before 1900 when the British South Africa Company was required to reserve a third of the country exclusively for blacks. Blacks could still purchase land in the remainder of the country, but few did so and they lost this right when the country was divided into 'European' and 'Native' (later 'African') areas by the Land Apportionment Act, 1931.

Almost all land in the European area was economically viable freehold, which legally could not be subdivided into sub-economic units until the 1960s. For example, in the mid-1940s mixed farms in the medium rainfall Nyamandhlovu district could not be less than 6000 acres (2428 ha). Land in the 'African Area' was broadly divided into two categories:

a. that acquired under freehold title (Native Purchase Areas). In 1960 this included about 6000 farmers on eight million acres (3.2 million ha) or 8.6% of the country: and
b. that occupied communally in Native Reserves and Special Native Areas (SNA)[ii]. Amounting to about 40% of the country, homestead sites and cultivations on this land were allocated under tribal law to individuals for so long as they continued to use them, by the local chief or his representative, while grazing areas remained communal (Krige, 1936; Bryant, 1949; Child, 1965).

These differences in land tenure had a marked influence on conservation. For our purpose, this enables us to contrast the emergence and spread of the national conservation movement in areas with different cultures and land tenure arrangements. The conservation movement emerged at a time of increasing land hunger in communal areas. This exacerbated increasingly serious interracial political conflict over land apportionment (Lado, 1999).

EARLY CONCERNS AND ACTIONS ABOUT RESOURCE DEGRADATION

Lionel Cripps, a farmer and later speaker of parliament, is credited with expressing the first public concern at resource deterioration by drawing attention to soil erosion in the *Rhodesian Agricultural Journal* in 1909 (Gordon-Deedes, 1961). In the absence of specialized environmental legislation, legislative steps in 1913 used the existing 'Water Ordinance' and 'Herbage Preservation Ordinance' to ration public water and prevent indiscriminate veld burning that 'caused accelerated soil erosion'.

Also in 1913, the *Rhodesian Agricultural Journal* published its first bulletin on soil erosion by W. Martin Watt. This advocated contour ploughing and grassed contour strips – measures that remain good farming practice to this day. Three years later Martin Watt called for legislation to protect trees within 50 feet (15.2 meters) of public streams. This may have alerted the Water Court, under Justice McIlwaine, to survey river flows in 1917, which it found had become less perennial as a result of soil erosion. McIlwaine's report led to Government protecting all timber within 200 feet (61 meters) of public streams using the Mining Law, and increased publicity against soil erosion.

The 'dust bowl' in the United States during the 1930s raised the profile of soil erosion in many countries (Beinart, 1984), but in Zimbabwe soil conservation and sound land management had become almost an obsession even earlier. The importance of soil erosion was raised at annual congresses of the Rhodesian Agricultural Union from 1918 to 1923, and the agricultural department published a series of bulletins on the topic from 1921 to 1934. The government assisted farmers to peg contour ridges and Elspeth Huxley reports that by 1936 there were 1597 miles (2570 km) of contour ridge on white-owned farms, increasing by 3% annually (Huxley, 1938).

In 1931 the Rhodesian Agricultural Union 'appointed a Soil Erosion Committee whose report recommended the establishment of district conservation boards coordinated by a central soil conservation advisory council to advise the government on general policy'. The committee also recommended soft loans for soil conservation work, better legislation to control wildfire and cutting timber, and that the 'Water Act should be extended to protect catchment areas' (Huxley, 1938).

There were also urgent calls to reduce overpopulated 'native stock', which was causing widespread soil erosion, and for better facilities to promote the sale of this stock (Gordon-Deedes, 1961). By the early 1940s, compulsory de-stocking and cattle auction sales were held in many administrative districts. These became monopolized by

cartels of speculators which depressed prices, leading to government replacing the system with weight and grade sales[iii]. This increased cattle sales, but the sales did not reduce stock densities to sustainable levels and led to coercive de-stocking that caused widespread resentment.[iv]

The Hailey Report described soil erosion and desertification as serious constraints to development in Africa south of the Sahara (Hailey, 1938). In Zimbabwe, mounting public concern led to the appointment of the Natural Resources (Parliamentary) Commission, under Justice McIlwaine, in 1938. McIlwaine, in many ways the founding hero of this story, was energetic, farsighted, spent a lot of time in the field talking to landholders about conservation, and recognized the importance of well-crafted legislation. The Commission he led was charged with determining the extent of natural resource deterioration and improper use, and recommending measures to counteract the problem. It issued a damning report, with photographs of resource damage, on April 28th, 1939. This led to the promulgation of the farsighted Natural Resources Act on August 1st, 1941, which incorporated many of the report's recommendations.

THE NATURAL RESOURCES ACT, 1941

The Natural Resources Act provided 'for the conservation and improvement of the Natural Resources of the Colony' and matters incidental thereto, including the creation of a Natural Resources Board (NRB). The Governor was to appoint the board with special regard to having members with knowledge and expertise in its remit, and covering such aspects as water supplies, agriculture, mining, African areas, forestry, and the like. The act also provided a framework to establish a countrywide network of volunteer Intensive Conservation Area (ICA) committees and, from the outset, broadened the NRB's mandate beyond soil conservation, by defining the country's natural resources holistically, as:

a) the soil, water and minerals;
b) the animal, bird and fish life;
c) the trees, grasses and other vegetation;
d) the springs, vleis, sponges, reed-beds, marshes, swamps and public streams; and
e) such other things as the governor may, by proclamation in the *Gazette,* declare to be natural resources, including landscapes and scenery, which in his opinion should be preserved on account of their aesthetic appeal and scenic value.

The first Board was named immediately after the Act came into force in November 1941. It first met on December 2nd, with Sir Robert McIlwaine K.C., chairman, and H.V. Gibbs (a later Chairman of the board and governor of Southern Rhodesia), H.R. Benzies and W. Sole as members. Importantly, neither the Chairman nor the members were civil servants, although it was serviced by a small secretariat of Government officials. The status of the Board's membership is indicative of Government's recognition and support of its mission, which lasted for over 40 years. Its main functions were to:

a) exercise general supervision over natural resources;
b) stimulate public interest in the conservation and improved use of natural resources; and
c) recommend to Government legislation and other measures for the proper conservation and improved use of natural resources.

The civic board was politically and bureaucratically independent, and enjoyed wide powers in overseeing the conservation and proper use of the country's natural resources. It, and the country-wide grass-roots ICA movement it represented (arranged into geographical groups and regions), became the democratic and popular custodians of the nation's resources. The board, on behalf of its membership, could call for technical reports, subpoena witnesses, examine them under oath, and impose restrictions or prohibitions on how owners or occupiers of land used it and resources on it. Likewise, the board could require they undertake protective measures to conserve or prevent injury to natural resources or, under special circumstances, it or its agents could undertake resource reclamation in the name of the minister and recover all or part of the costs from the landowners in question.

Against these far-reaching powers, the NRB was obliged to accept representation from interested parties on issues submitted to it for deliberation. It also had to ensure its actions were necessary and in the interests of conservation and that they were just and equitable. Furthermore, the act provided for a Natural Resources Court to whom any person aggrieved by a decision or order of the board, or who felt it was inequitable or unreasonably harsh, could appeal.

The NRB seldom used its considerable powers, preferring persuasion, negotiation, peer pressure, and consensus building, to achieve its objectives. Solutions to conservation issues were often nego-

tiated compromises acceptable to both the affected landholders and the Board, which tried never to be high-handed. Often these measures were initiated and implemented locally through democratic ICAs and their committees.

The NRB derived its authority and ability to act quickly and decisively through its chairman having rapid statutory access to any minister of state, including the prime minister. It also had an outstanding intelligence network, by virtue of the nationwide coverage of ICAs, which quickly informed it of any developments likely to prejudice natural resources. Thus, although the board was a reactionary institution, it was usually informed of potential environmental impacts so early that its actions could be anticipatory in preventing environmental damage.

Accountability for the board's activities and those to whom it made recommendations was assured by it having to report its actions and the extent to which its advice had been followed to parliament each year. The seriousness with which the house viewed the board's report is illustrated by a suggestion from the floor, during the mid-1970s, for the appointment of a Select Committee of parliament, akin to the Select Committee for Public Accounts, to consider the board's reports (G. Child, personally witnessed).

Although the act focused on soil conservation, it was the overarching legislation for the proper management of all resources, some of which were subject to separate acts. The Parks and Wild Life Act, 1975, controlled wildlife utilization at two levels. It devolved the rights to use wildlife to the landholder on whose land the wildlife occurs (other than Specially Protected and Protected animals and plants). However, externalities and any abuses associated with mobile wildlife were managed dexterously and democratically through the ICAs. Although fear was expressed by some that giving landholders proprietorship of wildlife would result in rapid losses, wildlife expanded rapidly once landholders received use rights as has happened throughout southern Africa (Child, Musengezi, Parent & Child, 2012). In contrast to South Africa, Namibia and Zambia, where fencing is a prerequisite to the rights for wildlife, the experience of Zimbabwe demonstrated that collective regulation could substitute for expensive game fencing, thus reducing financial costs and preventing land fragmentation. Wildlife became a legitimate form of land use, and saved many former livestock ranches from ecological and financial bankruptcy by the 1990s. Some 1000 ranchers switched partially or wholly to wildlife because it generated higher profits while allowing land to recover from past over-grazing (Child *et al.,* 2012).

ADVISORY COMMITTEES OF THE NRB

The board could appoint technical advisory committees, composed of board members and outside specialists. Gordon-Deedes (1961) considered those for Native Affairs, Conservation Education, Subdivision of Rural Land, Wildlife and Forestry, and Catchment Protection to be most important. These committees extended the board's competence for accomplishing its agenda. Mention must be made of the education committee which was exceptional. It had its own staff, and led by John Pile was entrusted with implementing the NRB's mandate to stimulate 'public interest in the conservation and improved use of natural resources'. With clear objectives, three or four public relations staff quickly ensured a well-informed broad public awareness of resource matters. School curricular materials and field activities coupled with adult education provided a sympathetic climate in which the NRB could achieve its goals by the early 1960s. By the 1970s it had also catalysed nationwide environmental awareness. This extended beyond conserving renewable resources to controlling litter, banning non-recyclable containers, and recycling a wide range of reusable materials such as bottles, plastic packaging, paper and the like (Pile, 1961).

THE ICAS – A GRASSROOTS AND COUNTRY-WIDE CONSERVATION MOVEMENT

The NRB was designed to rely on a network of ICA volunteer civic committees to implement its mandate rather than any formal executive arm of paid employees. Lovemore notes that 'The concept of a national body with very wide powers to act as a trustee over … natural resources and of a voluntary organization based on local committees of landholders had been formulated in the frequent discussions between Sir Robert McIlwaine and C. L. Robertson, Director of Irrigation, during their travels on Water Court duties' (Lovemore, 1977). This refinement to the devolutionary process, suggested by the Soil Erosion Committee of the Rhodesian Agricultural Union in 1931, had important consequences. Superficially similar to the soil conservation districts that emerged in the U.S.A. after the dustbowl, ICAs had two advantages; they were democratic rather than technocratic, and were also smaller than administrative districts –

making them more manageable geographical units with similar ecology and farming interests in which members could meet face-to-face on a regular basis.

The Natural Resources Act allowed two thirds of the landowners in an area to petition the minister, of their own volition, to establish an ICA in their area. ICA Committees were then elected locally by their peers who were mostly farmers strongly committed to conservation and sound land use, with a minority of rural miners. This ensured the political and bureaucratic independence of the conservation movement. Thus, civic ICAs were the main executive apparatus of the NRB. They promoted conservation and improved use of the natural resources in their areas and in cooperation with the NRB furthered the aims of the act.

However, the natural resources movement took some time to get going. The Natural Resources Commission had called for a secretary and inspecting officers on the board's staff in 1939, but World War II austerity prevented appointment of staff for three years. This delayed the creation of ICAs. Without them the board lacked contact with farmers and was ineffective, and this was compounded by the death of its chairman and leading champion, Sir Robert McIlwaine, in 1943. With only a part-time secretary, one conservation officer and some help from engineers in the Irrigation Department the movement faced apathy and suspicion among the white farmers during its formative years.

The first ICA was created in 1944, when an establishment of conservation officers was also provided in the Irrigation Department that year (Harvey, 1985). An ecologist was appointed to the Department of Agriculture in anticipation of it assuming responsibility for conservation extension, but growth continued to be retarded by post-war stringencies. A major turning point took place in 1948, when the Department of Conservation and Extension (CONEX) was formed as a separate entity in the Ministry of Agriculture, under Charles Murray, a man of immense drive and vision. It absorbed the 42 Conservation officers from the Irrigation Department, recruited additional professional staff and rapidly grew to be a highly effective farmer-friendly, conservation and extension arm of government that worked primarily through ICAs.

Thereafter, there was a rapid spontaneous increase in ICAs, with some 200 blanketing freehold land throughout the country by 1970. The ICAs were bodies corporate and were entirely voluntary organizations, set up on the initiative of local landholder communities. Committee members gave of their time gratis, but government provided ICAs with a small annual grant to cover secretarial costs, members' travel to the regular monthly meetings and for representatives from the ICAs and Groups to attend the annual National Conservation Conferences. Besides the CONEX Officer attached to each ICA as a technical advisor, experts from other government agencies like Forestry, National Parks and Wild Life Management, (Agricultural) Research and Specialist Services, Irrigation, Mines and Native Affairs attended meetings, some on an 'as and when required' basis.

The democratic ICAs provided the grassroots foundation for a national democratic conservation movement. Individual ICA's were divided into wards, each represented by a committee member who reported on environmental conditions, including resource abuse, progress with remedial measures and improved land use in the ward.

ICAs had considerable formal powers to regulate their members. Counter-intuitively, these powers resulted in most natural resource abuses being managed proactively and informally. Intransigent landholders causing excessive soil erosion, tree cutting, over-grazing and the like were referred to the NRB which could issue a legally binding order on the offender, although the threat to do so was usually sufficient to achieve full compliance (Gorden-Deedes, 1961; H. Child, pers. comm.). In the case of wildlife, the ICA committee could issue a temporary 14-day order banning hunting on a property, while the matter was reviewed by the NRB. The NRB could extend the order by another 14 days, to allow the Director of National Parks and Wild Life Management to take any necessary action. In fact, only one order was issued to curb hunting in the first decade after the Parks and Wild Life Act came into force in 1975 (G. Child, pers. obs.). A number of other hunting restriction orders were issued, but only as a legal device to regulate hunting on properties contiguous with parks and reserves.

ICAs were aggregated into geographical groups in which the Chairmen of the constituent ICAs represented their Areas. The country was divided into four regions for administrative purposes, each served by a district secretary. The district secretary represented the board and attended its meetings, and as many group and ICA meetings as practical. The district secretaries provided liaison

between ICA and groups, the board, government agencies, the Rhodesian National Farmers' Union and, later, the African Farmers' Union, ensuring cooperation with these bodies that was important to the success of the conservation movement (Vaughan Evans, 1976). In the language of today, this provided for horizontal and vertical cross-scale linkages necessary for the polycentric governance of complex social ecological systems (Ostrom, 2010).

The spread of conservation in the African Areas

Initially ICAs were associated with private freehold (white) land. Despite government support prioritizing the economically important white commercial farming sector (*e.g.* funding of soil conservation measures), within a decade the movement had spread to the African area, largely at the demand of black farmers.

By the end of World War II communal lands were suffering from severe resource scarcity and degradation caused by population growth, open access property regimes (every adult African had the right to occupy land in his tribal home area), and poor farming practices (*e.g.* ploughing up the slope). Although an additional 8% of the country was added (as SNAs) to the African area during the early 1950s (H. Child, pers. comm.), rapid population growth still reduced per capita holding from 18.9 ha in 1931 to 6.0 in 1970 (Zinyama & Whitlow, 1986). In an attempt to curb cattle numbers and overgrazing, the Native Affairs Department instituted compulsory de-stocking from the 1940s. This was contentious and exploited by anti-white nationalism. Similarly, it was also obvious that increasing land available to a black population doubling every 18 to 20 years was not the answer, which lay in modernizing land tenure and intensifying sustainable agricultural. It is beyond the scope of this paper to detail the approach adopted by the Native Affairs Department (under the leadership of Harold Child) responsible for 'native economic development' in the early 1950s. Briefly, this integrated strategy consisted of:

d) creating rural growth points and African townships around the main cities to encourage urbanization and relieve pressures on rural land – by 1982, 24.2% of the population, was urbanized (Zinyama & Whitlow, 1986);
b) the acquisition of an additional eight to 10% of the country for rural settlement by blacks – recognizing it could only be a short-term palliative while other measures took effect;
c) the intensification of agricultural production by providing irrigation and the better distribution of stock watering points; and
d) promulgation of the Native Land Husbandry Act 1951, which recognized the 'tragedy of the commons' (Hardin, 1971) in open access communal areas, and aimed at modernizing land tenure in Native Reserves and SNAs.

The NRB applauded and promoted the Native Land Husbandry Act. This promoted freehold ownership of homesteads and arable land, plus rights to graze a specific number of livestock units in communal grazing areas through a system of locally tradable permits. It aimed to make each holding financially viable and convert it from a communal into an individually owned financial asset. Early implementation of the act was successful because it was accomplished by extensive consultation between technically competent staff and the affected people. However, these early successes led prime minister Garfield Todd to rush implementation of the Act for political reasons. This ignored the reality that highly participatory land reform processes take time and this, more than anything else, probably doomed it.

By 1960 the act had been implemented in many areas, encouraging an immediate improvement in land husbandry. However, progress was retarded by a shortage of technical advisers and the high density of people at some localities (Gordon-Deedes, 1961). Gordon-Deedes (1961) concluded that, encouraged by the shift from tradition tenure to individual land ownership, African farmers 'are showing a new interest in farming'. He anticipated Agricultural Committees (equivalent to ICAs) would soon form in communal areas where the Act had been implemented and, by 1961, he was convinced that good conservation depended on individual black as well as white land ownership.

Gordon-Deedes' (1961) conclusions were supported by anecdotal evidence, but not substantiated by objective studies. Whitlow used aerial photography to show an inverse relationship between soil degradation and land tenure; erosion was advanced in the communal areas, followed by African Purchase Areas, and was light in white areas with little occurring on state land (mainly parks and reserves) (Whitlow, 1988). Norton Griffiths reports better conservation and financial returns on freehold land than customary tenure in

Kenya (Norton-Griffiths *et al.,* 2008; Norton-Grifiths, 2008). However, property rights enhance the scope for empowering grassroots democratic self-regulation, and we speculate that the collective oversight of natural resources through ICAs contributed to the differences in erosion measured by Whitlow (1988).

By 1960, formation of conservation committees was progressing in the African area. Back in 1952 black farmers from the Native Purchase Areas had urged the NRB to establish ICA Committees in their areas similar to those in the 'European Area' (Gorden-Deedes, 1961). Following strong NRB representations, Government agreed to establish Agricultural committees under the Native Councils Act, where councils existed. However, these councils lacked the democratic credentials and independence of white ICAs and were politically unpopular among blacks (H. Child, pers. comm.); ICAs only became popular in black areas after this democratic deficit was addressed. Only nine committees were established by 1959.[v] The first and only national conference of agricultural committees in 1960 stressed the desire to divorce the committees from native councils and give them full ICA status under the Natural Resources Act, to which government quickly agreed. We return to the importance of distancing natural resource collective action from district governance below.

In response the desires of black farmers and the massive conservation problems they faced, the NRB petitioned government in 1966 to permit independent conservation committees under the tribal authorities in communal areas (*i.e.* Native Reserves and SNAs). By the end of 1977 there were 141 ICAs in the Tribal Trust Lands (the new name for Native Reserves and SNAs, Lovemore, 1977). These were served by an elaborate system for liaison at the district and national level, with two black representatives on the NRB by 1971 (G. Child, pers. obs.). The number of ICAs in the Purchase Areas rapidly increased to 95 (Lovemore, 1977).

Gordon-Deedes (1960) comments on the growing assistance to black farmers from the ICAs and white farmers generally. Black and white farmers attended each other's field days, and the growing mutual interest and assistance encouraged the spread of conservation and sound farming practices. This ground swell of cooperation helped alleviate the shortage of technical staff in the Department of Native Agriculture, and is remarkable against the contemporary political mood spreading across Africa in response to the 'winds of change'.

By this time the Native Land Husbandry Act was faltering in response to divergent political forces, particularly black-nationalism's exploitation of its unpopular provisions to de-stock cattle. This 1951 act was conceptually decades ahead of its time, promoting both private land holdings for Africans and tradable permits for sharing common pool resources like grazing. It worked well in pilot districts accompanied by high degrees of participation (H. Child, pers. comm.). However, unlike the NRB, impatience with the speed of uptake resulted in implementation become more rigid and top-down, particularly in regulating grazing (Harvey, 1985). The urgency to protect land at the expense of participatory processes doomed the act. While white farmers controlled each other's over-grazing through peer pressure, de-stocking in communal areas was state driven because it was seen to be an ecological emergency. Furthermore, while offering a sound technical solution to an immense ecological problem, agrarian reform failed because of de-stocking and because land titling was applied with too much haste in a political climate which was antagonistic (H. Child, pers. comm.).

AN EFFECTIVE COUNTRYWIDE CONSERVATION MOVEMENT

By contrast, the highly participatory and democratic ICA movement was both popular and effective. The NRB and its ICAs, with government technical support, achieved considerable progress towards conserving complex renewable resources and enhancing farm production. Preferring persuasion and peer example to flexing its considerable statutory muscle (Gordon-Deedes, 1961), the movement was able to encourage effective conservation and improved production from most resources, with white farming areas generally taking the lead. For example, by 1960, most ploughing in both black and white farming areas was done on the contour and most arable land was protected by contour ridges and grassed drainage lines. Approximately a third of the white farms had been planned ecologically and such planning was progressing well in the African areas. In 1960 alone, white farmers constructed 778 government subsidized farm dams, and many others were built by the state in the African area (Gordon-Deedes, 1961).

In that year, the NRB and its committees advocated an impressive array of topics. These included:

conservation problems in the African area; lobbying government to increase agricultural and wildlife research, to increase the establishment of professional extension and irrigation officers, and to offering them better conditions of service. It supported the government's construction of the Chibero Agricultural College for blacks; agitated against lenient subdivision of land into subeconomic units (as by then government had gone soft on the minimal size of individual land holdings on freehold land); pressed for increased farm dam subsidies; supported devolution of responsibility for wildlife to landholders; commented favourably on decreased wildlife poaching and more discriminate use of pesticides; and warned against clearing trees along drainage lines to control tsetse fly (*Glossina morsitans*). It also concerned itself with mining and mine pollution issues, was pleased with progress in environmental education, and moves towards better conservation and use of resources in complete catchment areas, but lamented continued over grazing by livestock, particularly in the African area.

Morse and colleagues comment on the speed with which the natural resources movement was able to catalyse advances in cooperation between government technical agencies, the organs of local government, and private landholders (Morse, Hadow, Hawes, Jenkins & Val Phillips, 1960). Ecological farm planning had been viewed with suspicion and as an intrusion on personal landholder liberties by white farmers when proposed as a national strategy in the mid-1950s. Five years later, over a third of all white-owned farms and a number of large catchment areas, including land occupied by blacks, had been fully planned or was in the process of being planned (Gordon-Deedes, 1961). Likewise, custodianship of wildlife which was devolved to landholders through the Parks and Wildlife Act of 1975 was readily accepted by ICAs within two years. ICAs provided a collective institution by which members could govern fugitive, shared and high-value species like sable antelope (*Hippotragus niger*) or eland (*Tragelaphus oryx*) by, for example, negotiating annual hunting quotas where necessary. The massive increase in wildlife numbers on private land (and the absence of game fencing) would have been difficult without the institutional foundation provided by ICAs.

ICAs and groups devoted considerable effort to encouraging improved farming and enhanced economic efficiency so as to minimize resource damage. For example, the Que Que (now Kwe Kwe) group, which is 98% ranch land, assembled information from experts to produce a 'Game management manual' in 1980, to assist its members incorporate wildlife and safaris into their farming ventures (Vaughn Evans, 1976). It also decided to encourage a system of short duration, high intensity grazing to conserve habitats and encourage wildlife (Swift, 1976). While the technical merits of short duration grazing were questioned professionally, the group and local extension staff were satisfied that it led to better veld management, either because of inherent strengths in the system proposed by Savory (1988), because of increased farmer awareness of animal/habitat relationships, or simply through increased enthusiasm for conservation and in-group competitiveness.

Landholder communities achieved remarkable progress towards conserving individual resources like soil, vegetation, wildlife, and the environment as a whole. The movement was envied by a wide audience outside Zimbabwe (see Morse *et al.,* 1960, Harvey, 1985) and is reputed to have influenced upgrading of conservation in the United States following the 1961 IUCN Arusha conference in Tanganyika where NRB representatives featured prominently (Gordon-Deedes, 1961; Pile, 1961; T. Riney and J. Savanu, pers. comm.).

It was a tribute to McIlwaine and his Natural Resources Commission that the Natural Resources Act and its basic provisions remained so relevant and effective for 40 years. The civic NRB and democratic ICAs were favourably commented upon by farmers, conservationists and land managers who visited the country (pers. obs.). The combination of voluntary participation (the Natural Resources Act must have been accepted by at least 66% of the rural people it affected) and an excellent conservation education system ensured that the NRB became the vanguard of a conservation movement, at the heart of which were conservative, pragmatic farmers, with different levels of education. The NRB movement cultivated a common conservation culture motivated by realization that safeguarding one's personal livelihood required contour management, organic and inorganic fertilizers, crop rotation, correct stocking rates, fire management, and the protection of streams, vleis and sponges (Pile, 1961). Gordon-Deedes (1961) emphasizes the importance of a collective culture of voluntary participation, conservation responsibility, the use of persuasion rather than compulsion, and faith in 'the goodwill and common sense

of the people'. He also warns that 'success can only be achieved if [the movement] is free from political influences [because] once political considerations are permitted to encroach, the cooperation and goodwill of the people are endangered' (Gordon-Deedes, 1961). This was a prescient statement as we see below.

THE DECLINE OF THE CONSERVATION MOVEMENT

Two events, instigated by Minister Mark Partridge while holding the portfolio for Natural Resources, eroded the independence and effectiveness of the conservation movement from about 1976. Both emphasized technical efficiencies at the expense of the movement's democratic character. Perhaps the less important was replacing the board's secretariat with a full blown Department of Natural Resources on February 23rd, 1976. The Department absorbed the Lands Inspectorate, a policing body responsible for enforcing aspects of the Natural Resources Act. This had been discreetly separated from the NRB in the Department of Lands, where it could not erode the board's civic character. Besides this unfortunate linking of conflicting goals, the department actively guided the board and unconsciously replaced civic leaders with civil servants, weakening the board and its ICAs.

The second action was persuading ICA Committees to become Natural Resource Sub-Committees of their respective rural councils. Ever one to consolidate responsibilities, Partridge believed the move would strengthen conservation, but it had the opposite effect. Although the change was touted as voluntary, it was championed by the minister, the chairman of the board, himself recently a minister, and the department, on the basis that 'unity is strength'. By the end of the year, 30 ICA committees had succumbed, while others continued to resist in fora like the annual conservation conference. They feared ICAs would lose their identity, independence and effectiveness through incorporation into rural district councils, to whom they would be subservient. These fears were well founded, as the highly effective conservation movement lost direction and momentum from the late 1970s. Supporting this, is the personal observation that the committees that remained most effective were those emancipated by their parent councils and mandated to continue functioning independently, as in the past.

Although the distractions of the escalating civil war certainly impacted the conservation movement, its decline in the late 1970s and 1980s was largely a result of pre-independence structural changes that reduced the democratic independence of the movement ahead of the momentous social change as the country moved from white minority to black majority government. Many other white farmer-led movements, like the Commercial Farmers' Union, the commodity associations and much agricultural research, continued to be effective well after independence.

Incorporating the ICAs into rural councils weakened them by shifting their basic accountability, and by enlarging them. From being conservation bodies elected and responsible to landholders, they became political entities elected by a political electorate with no obligatory concern for renewable resources. Districts were also larger than ICAs, which lost much of their face-to-face operability. These fundamental shifts in accountability removed the almost single minded motivation that had driven the movement, and to which it owed its success. Conservation committees became less nimble in adjusting to change and less able to support the NRB from whom, as sub-committees of rural councils, they were now administratively divorced. Further blows were the declining effectiveness of the NRB's education programme, and the politicization and increasing centralization of the Department of Natural Resources after Independence, a common feature of state agencies in newly Independent states (Grindle & Thomas, 1991). This evidence only strengthens the contemporary arguments that natural resource governance flounders where genuine decentralizing or democratization is not occurring, or is even used cynically as a form of recentralization (Murombedzi, 1992; Ribot, Agrawal & Larson, 2006).

The NRB lingered on, but its ICAs withered. This was hastened by the weakening of the Department of Conservation and Extension and Research and Specialist Services, as the new government lost the services of many experienced technocrats. Some ICAs found resurrection in emerging wildlife conservancies based on corporate legal arrangements (Lindsey, Toit, Pole & Romanach, 2009). The final death knell came with the destruction of white commercial farming from 1998, when President Mugabe evicted white farmers from their land and placed it under state control. This resulted in a rapid decline in agricultural output, but associated lawlessness and impunity had negative consequences for natural resources abuse, particularly

of woodland and wildlife; the wildlife on former white farms, that had grown and prospered under NRB stewardship, was reduced by 60 to 80%. The post-2000 decline in wildlife in Zimbabwe is a predictable outcome of the dramatic weakening of use rights and the re-centralized control associated with a land reform process that was not carefully conceptualized.

DISCUSSION

We end the paper by using the ICA movement to introduce to conservation managers a set of theories for guiding the design and management of effective resource governance. We also comment on the processes through which systems of governance can be changed using the lens on New Institutional Economics.

The emergence of the civic conservation movement in Zimbabwe owed its success to a combination of factors, events and personalities – what we call a critical juncture. The enlightened leadership of outstanding champions like Sir Robert McIlwaine, Gordon-Deedes and many highly committed government officials like Charles Murray, combined with public concern for renewable resources, to encourage the emergence of a pragmatic, democratic 'grass-roots' conservation movement over several decades. The guiding principle followed by the NRB was '*Salus populi est supreme lex'* – the welfare of the people is the supreme law (Gordon-Deedes, 1961).

Political leaders and professional civil servants recognized that landholders were self-motivated and responsible (Theory-Y) rather than lazy and irresponsible (Theory-X, McGregor, 1960). They designed a system to empower rather than control landholders (Gordon-Deedes, 1961) through an institutional framework based on the primary principle of local responsibility and accountability. Reflecting what management gurus Peters & Waterman (1982) coined 'loose-tight' management, the board had extremely wide powers to order landholders to conform to resource conservation and protection measures but relied 'upon persuasion rather than compulsion [and] the goodwill and common sense of landholders' (Gordon-Deedes, 1961; Peters & Waterman, 1982). Thus the NRB empowered farmers to protect resources collectively but held them to high standards. These democratic principles also led to the rapid spread of the movement among black farmers. Indeed, we provided the counter example of the Native Land Husbandry Act precisely to emphasize how quickly a coercive or paternalist approach can undermine sound technical advances, in this case the intention to introduce individual and communal property rights in communal areas.

New Institutional Economics, and especially, Williamson's (2000) model of the interactions between the four levels of an economy, is useful for interpreting how and why the ICA movement emerged so successfully. Williamson suggests that a society's culture (Level 1 – 'culture') determines which institutional possibilities are feasible (Level 2 – the 'rules'), with institutions being defined as the rules and norms that guide societies interactions (North, 1990). Institutions such as legislation, rules and norms in turn determine how society is organized and managed (Level 3 – the 'players'), and this guides resource allocation through day-to-day supply and demand transactions (Level 4) (Williamson, 2000). Using this framework, we see that the innovative and devolutionary nature of Zimbabwe's ICA legislation (Level 2) was made possible by the culture of the electorate with a highly independent but well-resourced farmers' government favouring bottom-up conservation governance (Level 1). The resulting organizational structure took the form of highly devolved and democratic ICAs (Level 3), with self-responsibility, collective action and education combining to influence the day-to-day allocation and conservation of natural resources in positive ways (Level 4). The example also illustrates three entry points for policy change. First, champions were able to change the laws. Second, successful pilot examples are critical. These led to the uptake of new laws by landholders, but also to additional legal reform such as the Parks and Wildlife Act that devolved use rights to private landholders in 1975 and to communal villagers in 1982. Third, the NRB recognized that legislation (Level 2) seldom works in the absence of a supportive cultural environment (Level 1), and over many years proactively strengthened a culture of devolution, and environmental responsibility through a multi-faceted environmental education campaign.

The natural resources movement was also remarkably well aligned with contemporary common property theory and, as we will show, it fulfils all eight of Ostrom's design principles for long-enduring common property regime institutions. Thus, farm boundaries and ICA boundaries were clearly defined (*i.e.* Common Property Regime [CPR] principle 1). Most individuals affected by the

operational rules could participate in modifying these rules (CPR3), resulting in strong congruence between rules and local conditions (CPR2). Monitoring and auditing of governance processes and natural resources was done by the farmers themselves (CPR4). However, this was augmented by external monitoring provided by the Lands Inspectorate, such as the annual land inspection over-flights. Paradoxically, devolution often benefits from external oversight and conformance monitoring, provided the purpose of this is to protect the aims of the majority from being undermined by a non-compliant minority. Thus, these inspections were always done in partnership with the ICA in a spirit of cooperation and empowerment.

Fairness and accountability were essential features of the ICA movement. Farmers who violated conservation norms were subjected to graduated sanctions usually through peer-pressure but also through strong legal action in the few cases this was necessary thus fulfilling Ostrom's fifth principle (CRP5). Similarly, participants always had access to informal or formal conflict resolution mechanisms through ICAs and the Natural Resource Court, respectively (CPR6).

Local collective action is invariably embedded within larger systems, and these relationships are critical. Thus, the Natural Resource Act recognized and encouraged the rights of landholders to organize (CPR7), and in doing so greatly reduced transaction costs of collective action by providing an enabling legislative and policy framework. The champions of the ICA movement recognized that local resource management is highly sensitive to the intersection and character of state–local interactions (Gordon-Deedes, 1961). Only sparing use of these powerful laws was required, with most corrective action being taken proactively and locally. The common property literature may well underplay the importance of such champions, especially government actors, in establishing common property regimes (Schoon, 2013). However, it certainly highlights how quickly the incentives for local action can be undermined if the state centralizes responsibilities or is heavy handed in their application (Ostrom, 2000). ICAs seemed to get this balance right. Government research and extension was used to guide (not control) sound land use. Government support including extension was neither effective nor trusted until it was provided through and controlled by committees elected from amongst their own local farming community, and because it relied upon persuasion rather than compulsion (Gordon-Deedes, 1961).

One of the hardest challenges in natural resource governance is the design and governance of the multiple layers of nested enterprises (CPR8). While Ostrom acknowledges the growing importance of polyvalent governance, we need to turn to Murphree for design principles for scaling up natural resources institutions to retain (rather than alienate) the cooperation, insight, resourcefulness and accountability of landholders (Murphree, 2000). Murphree (2000) emphasizes the importance of processes and power relationships in the formation of scale jurisdictions, and introduces three design principles: 'jurisdictional parsimony' in matching the scale of resource externalities to the scale of resource jurisdictions; 'delegated aggregation' as the mechanism for expanding jurisdictional reach while ensuring that natural resource governance still originates with the landholders who live with these resources, and 'constituent accountability' as the process of building civic structures that are accountable to their landholder constituencies.

Murphree (2000) argues that meso-level institutions for regulating collective action need to form through bottom-up processes if they are to be downwardly accountable to their constituents. This implies that scaled institutions should be carefully sequenced, by first scaling down and only then scaling up through a process of delegated aggregation. This suggests that ICAs were effective because private landholders came together voluntarily to form them, and set local regulations only through the agreement of the majority of members. This seemingly simple action had profound outcomes in terms of the legitimacy and effectiveness of the ICAs, and perhaps to collective action generally. The actions of ICAs were designed by and accountable to constituent landholders so that natural resource governance and government originated in the landholders (Mansfield & Winthrop, 2000). The important mechanism is that upward delegation of powers ensured that each ICA was downwardly accountable to the farmers that elected it. This accountability spread upward through the nested layers of ICA government, which were always rooted democratically in ICAs because powers could be taken back if they were not used well.

The effectiveness of the ICAs originated in their democratic character, and contrasts with most environmental regulations which rely on the

upward expropriation of powers by larger jurisdictional units. Top-down environmental regulations may look neat, but they tend to be ineffective because the administrative centre lacks implementational reach, especially where regulations lack social legitimacy and disempower or even alienate landholders and communities. Moreover, top-down regulation tends to accumulate many functions higher up the administrative chain and to overwhelm the systems' managerial capacities. Upward delegation is much better at matching the scale of resource externalities to jurisdictional scale, and accumulates responsibilities much lower in the administrative chain which is better for managing local complexity. This is because landholders parsimoniously pass up only those powers for which there are distinct advantages at higher levels because of significant externalities or scale economies. This allowed ICAs to focus parsimoniously on a few important issues where they could add genuine value.

The importance of the democratic nature and face-to-face scale of ICAs is emphasized by their rapid decline when these conditions were violated in the late 1970s by consolidation and amalgamation with the organs of Local Government. Before this, ICAs focused on a single non-political function – the collective governance of the environment and its associated complexities and externalities. ICAs were directly accountable to landholders with a personal commitment and interest in the outcome of its actions. ICAs provided a scale at which people were individually and collectively able to internalize both ecological and financial costs and benefits, with peer pressure and monitoring strengthening ecological and economic feedback loops, and resulting in much higher levels of accountability. Accountability was enhanced by property rights, extension services, information, and environmental education of farmers, teachers and students. The conservation movement was autonomous and insulated from politics, although it required Government support and worked closely with State officials to achieve common goals. It illustrates an effective blending of public and private endeavour across scale, for the purpose of wise environmental use or sustainable development, as later defined by the World Conservation Strategy (IUCN, 1980).

CONCLUSION

A remarkable feature of Zimbabwe's ICA movement described in this paper is its congruency with theories of management (McGregor, 1960; Peters & Waterman, 1982), common property (Ostrom, 1990), and scale (Murphree, 2000). This congruency suggests that these theories themselves may have a common origin. Indeed, the key to the paradigm shift initiated by Sir Robert McIlwaine through the Natural Resources Act of 1941 was two-fold: most people are innovative, responsible and self-actualizing, especially when subjected to local face-to-face checks-and-balances. This insight was incorporated into Zimbabwe's unique system of environmental governance by devolving the rights to use natural resources to landholder while using democratic local collective action to manage externalities. The key to the ICA movement was recognizing that true development lies is the ability of individuals to self-actualize through freedoms of choice, transparency and opportunity (Sen, 1999).

The commonality between the ICA movement and Ostrom's (1990) principles for effective common property regimes, suggests that Ostrom's principles also originate in a combination of individual discretionary choice and self-actualization within a collective arrangement that encourages full and fair accountability. Thus Ostrom's first three principles and principle seven (*i.e.* clear boundaries, locally appropriate rules, participation in rule setting, recognized rights to self-determination) are about enabling individuals to participate fully in designing sound rules that bind them collectively. The next three rules (monitoring, sanctions, and conflict resolution) ensure transparency and fairness in adherence to these rules. Similarly, Murphree's (2000) design principles for nested hierarchies ensure that higher levels of jurisdiction originate in and are accountable to participating individuals and communities.

This does not imply that environmental governance should be a free for all, for this would result in chaos. The goal is to encourage personal accountability but within clearly defined boundaries and expectations of appropriate behaviour and performance, which is why monitoring and sanctions are critical. However, these boundaries are set collectively and democratically, and should not be imposed by politicians or technocrats except through persuasion.

Conservationists may be reluctant to entrust important and urgent environmental regulation to a messy and slow democratic process. However, it is no coincidence that all large, rich nations are democratic (North, Wallis & Weingast, 2009), or

that extractive and centralized institutions fail for all but the elites by whom and for whom they are structured. Acemoglu & Robinson (2012) develop the profound idea that inclusive institutions, and the checks and balances within them, result in the positive feedback loops that, for the first time in human history, have resulted in shared and multi-dimensional human prosperity. By contrast, top down institutions are invariable structured by the elite to extract resource from the rest of society, are rarely associated with broad prosperity, and strongly oppose technical and institutional innovation.

Thus McIlwaine prioritized individual and collective rights and responsibilities as the foundation of socially inclusive ICAs, and this paper illustrates some of the resulting positive feedback loops. Importantly, differences between the devolved and democratic ICAs envisaged by McIlwaine, and the consolidation of ICAs with district councils in the name of technical efficiency by Minister Partridge in 1976, may seem minor but it had profound negative consequence on the performance of the conservation movement; McIlwaine succeed because he recognized the power of human self-responsibility, fairness and collective responsibility, and Partridge undermined this progress because he didn't. Does this imply that we need to turn conservation governance on its head so that the role of national and international conservation institutions is not primarily to act, but to develop mechanisms and processes that enable individual and local collective responsibility for the environment much as McIlwaine did? On reflection, the emergence of civic governance of natural resources was largely uncontested, in marked contrast to natural resource issues in general for the very reason that the system was built from the bottom up to serve the needs of the bottom layers (Meadows 2008: 178).

In conclusion, we have long had the knowledge to design effective resource governance regimes; what is missing is the contemporary leadership to do so. However, this paper highlights how critical to success is the intersection of bottom-up private action and top-down regulatory action, and that the mindsets by which institutional structures are governed are at least as important as the structures themselves. The administrative design of nested natural resource hierarchies is important. Yet the real lesson of this paper is the primacy of a culture of genuine democratization and participation to institutional governance. It may take more time, but the true route to environmental governance will require the courage to entrust resources to local control. This involves devolving full use rights to landholders and communities. It also requires the bold step of devolving regulatory authority to communities of landholders though carefully crafted processes of local collective action, peer learning and control. These work best backed up by strong but light touch external verification, both of the democratic process and conservation performance.

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ENDNOTES

i. Graham Child, as Director of National Parks and Wild Life Management from 1971to 1986, had a close relationship with the NRB, hosting it for about a week in most years. He also served on its Education , Forestry and Wildlife Committees and as Chairman of its inter-ministerial working party preparing a National Conservation Strategy. Prior to that his father, Harold Child, had been a technical adviser to the NRB (1949–1954) and (after retiring from Government) its first District Secretary (1955–1959). This brought Graham into contact with many personalities of the formative years of the NRB, and he also won the NRBs first Young Conservationist award in 1951 while at school. Brian Child had considerable contact with ICAs as a government extension officer and researcher on private wildlife land (1989–1995) and as coordinator of the CAMPFIRE programme 1989–1995.

ii. These were legally similar except that residual powers held by the British Government to protect the rights of people in Native Reserves did not apply in SNAs.

iii. At this time, Harold Child was Native Commissioner in Nyamandhlovu District where he catalysed weight and grade sales, requiring the Cold Storage Commission to act as residual buyer at fair floor prices that aimed to upgrade the quality of stock on offer, and to encourage communal residents to sell more cattle.

iv. Gordon-Deedes (1961) attributed problems with de-stocking to traditional mores which equated a man's wealth and social status to his livestock hold-

ings. Later, government agricultural officers showed that over-stocking was a sound economic investment on open-access range. They calculated that the natural increase in livestock inventory, plus the value of milk, manure and draught power, gave cattle on communal land with highly subsidized services an annual return on investment of around 60% (Melville Read, pers. comm.). This compared with 7.5%, at best, in the money market and was largely independent of the weather, until prolonged droughts in the 1980s killed many animals.

v. A contributing factor may have been an overstretched Board staff, as the number jumped to 13 that year when a District Secretary was appointed for the African Areas.

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