

LOCAL EMERGENCY CO-PRODUCTION IN AUSTRALIA: THE CASE OF THE NEW SOUTH WALES RURAL FIRE SERVICE

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ABSTRACT: Given the vast spatial area and low population density involved, together with the prevalence, frequency, and severity of bushfires, firefighting services in non-metropolitan areas of Australia have always depended heavily on the contribution of volunteer firefighters. Australian volunteer firefighting services represent an unusually high degree of collaboration between local volunteers and state and local governments. In this paper, we examine the nature and operation of the New South Wales (NSW) Rural Fire Service (RFS) through the analytical lens of the local co-production paradigm, to date a dimension of Australian volunteer firefighting that has remained largely unexplored in the scholarly literature. In particular, we examine the comparative advantages that the NSW RFS garners from its unique combination of government funding, professional staff, and volunteer firefighters. The paper concludes by considering the public policy implications of the analysis.

KEYWORDS: Bush fires; firefighting; local co-production; Rural Fire Service; volunteers.

1. INTRODUCTION

The 2019/20 southern summer witnessed a prolonged and savage bushfire season that engulfed more than eighteen million hectares of the Australian continent (Chester, 2020). The resultant damage included extensive human and animal loss of life, as well as immense economic and environmental losses (West *et al.*, 2020). An important consequence of

these horrific bushfires has been to focus public attention worldwide on the critical role played by volunteer firefighters in combating the Australian bushfires (O'Halloran and Davies, 2020; Vardoulakis *et al.*, 2020). As a consequence of its longstanding experience with severe seasonal bushfires, all Australian states and territories have developed formidable administrative and technical capacity in firefighting (Pyne, 1991; Clark, 2020; Dickson-Hoyle *et al.*, 2020). Given the immense spatial size of non-metropolitan Australia with its sparse human settlement, firefighting capacity outside of cities relies heavily on co-production involving state and local governments together with volunteer firefighters (McLennan *et al.*, 2016). The New South Wales (NSW) Rural Firefighting Service (RFS) is the largest of the eight Australian state and territory firefighting services with 1,994 fire brigades and more than 71,234 volunteers in 2018/19 financial year (Table 3).

In the present paper, we address the question, how the NSW RFS operates through the conceptual lens of co-production and we also consider how well this model of co-production functioned during the 2019/20 NSW bushfires. In particular, we attempt to identify the synergies that the NSW RFS has harnessed through a combination of public funding, professional staff, and volunteer firefighters that serves to capture the comparative advantages of these inputs. We then examine whether or not the co-production model was a suitable model for the extreme levels of firefighting experienced during the 2019/20 bushfires. The methodological approach used to answer these questions comprised a qualitative analysis of the primary documentary evidence and the extant grey literature, including government reports, annual reports, and parliamentary inquiries, augmented by scholarly research.

The paper is divided into six main parts. Section 2 provides a synoptic account of the scholarly literature on local co-production, co-production in emergency service provision, and volunteer firefighting in Australia. Section 3 briefly describes the nature of volunteer firefighting agencies in Australia by way of institutional background and then section 4 considers the NSW RFS in more detail. Section 5 illuminates the manner in which the NSW RFS operates by examining its performance during the catastrophic 2019/20 bushfires. Section 6 adopts the analytical prism offered by the literature on local co-production in an effort to shed light on the operation of the NSW RFS during the 2019/20 bushfire season. The paper ends in section 7 with a brief discussion of its chief public policy implications.

2. CONCEPTUAL PERSPECTIVES ON LOCAL CO-PRODUCTION

Elinor Ostrom (1972) introduced the concept of co-production into the public administration literature in order to illuminate the role local residents play in the provision of public services, including emergency services. While a voluminous literature has arisen around co-production in the public sector (see, for instance, recent reviews of the literature by Voorberg *et al.*, (2015) and Brandsen and Honingh (2016)), much less attention has focused on co-production in the provision of emergency services, such as firefighting, possibly due to its additional institutional complexities (Musso *et al.*, 2019). The past decade has witnessed a resurgence of interest in co-production in both real-world public service provision and the scholarly literature. Nabatchi *et al.*, (2017, p. 766) contend that three main forces account for this trend. Firstly, the ‘new governance’ approach in public administration has emphasised the ‘increasingly multi-sectoral nature of governance’ and recognised the need for ‘a pluralistic model of public service based on inter-organizational relationships, networks, collaborative partnerships, and other forms of multi-actor policy making and public action’. Secondly, the global financial crisis has ushered in an era of austerity in which co-production can act as an engine in reducing the cost of public service provision. Finally, the inexorable decline in social cohesion in many Western societies has ‘prompted scholars and practitioners to look for new public service delivery mechanisms that will reinvigorate the role of citizens in their communities beyond simply voter and customer’.

Despite the renaissance of co-production in the public administration literature, widespread acknowledgement exists that there is ongoing confusion on the nature of co-production, derived in part from definitional ambiguities (Brandsen and Honingh, 2016). Together with its conceptual cousins, co-creation and co-design, co-production has been attacked on various grounds (Pollitt and Hupe, 2011; Voorberg *et al.*, 2015). For instance, in their editorial in a Special Issue of the *Public Management Review* devoted to co-creation, co-design, and co-production in public services, Dudau *et al.*, (2019, p.1577) argued that the concept of co-production suffered from three generic defects. Firstly, they contend that co-production is ‘polysemic’ in that ‘it means different things to different people’. Secondly, in normative terms co-production is ‘very appealing’ since it is almost universally assumed that “‘co” necessarily leads to added value, hence it is superior to non “co” alternatives’. Finally, the

presentation of co-production as a ‘consensual and marketable concept’ implicitly denies that it can only be fully understood in a given and concrete real-world institutional setting. Notwithstanding these difficulties, in the present context we adopt Alford’s (2009, p.23) definition that classifies co-production as ‘any active behaviour by anyone outside the government agency’ that is (a) ‘conjoint with agency production, or is independent of it but prompted by some action of the agency’; (b) ‘at least partly voluntary’; and (c) ‘either intentionally or unintentionally creates private and/or public value, in the form of either outputs or outcomes’.

A substantial scholarly literature has focused on co-production that includes co-production involving volunteers in the provision of local emergency services (see, for instance, Verschuere *et al.*, (2012) for a survey of the literature on local co-production). For example, scholars have considered the conditions required for this mode of co-production to be effective, such as Needham (2008), Scolobig *et al.*, (2015) and McLennan (2020). Researchers have also examined the nature and extent of cost savings associated with emergency service provision that utilises community volunteers (Sharp, 2006; Clark *et al.*, 2013; Garlatti *et al.*, 2019). Some work has investigated the question of the degree to which unpaid involvement in community co-production is indeed voluntary (Jakobsen and Andersen, 2013; Tönurist and Surva, 2017). Researchers have invested considerable effort into examining local community co-production centred on partnerships between local government and community groups that deals with marginalised residents, such as elderly residents (Kinoshita *et al.*, 2020). Moreover, numerous other dimensions of voluntary co-production emergency service provision have also been considered (Pestoff, 2006; Alford, 2009; 2014; Mees *et al.*, 2018; Velotti and Murphy, 2020).

A sizeable literature exists on volunteer firefighting services in the Australian context. For instance, researchers have established the critical importance of volunteers in firefighting efforts in non-metropolitan regions of Australia (Birch and McLennan, 2007; Baxter-Tomkins and Wallace, 2006). Similarly, scholars have devoted considerable attention to various problems surrounding the shortage of volunteer firefighters in rural areas (McLennan and Birch, 2005; Baxter-Tomkins and Wallace, 2009; O’Halloran and Davies, 2020). The impact of demographic change on volunteer firefighting has also been examined (Keane and Beer, 2000; Davies, 2011). Furthermore, scholars have considered the adverse physical and psychological health effects of firefighting on volunteers (Bryant and Harvey, 1996; Reisen and Brown, 2009) as well as the impact of competing demands on volunteer firefighters (Meikle, 2001; Mitchell, 2006). Finally,

some effort has been invested in examining disaster management programs that operate through co-production (McLennan, 2020).

Rural fire-fighting is a critical activity for the wellbeing of Australian society on a remote, regional, national, and international level. As a public service centred on meeting the needs of non-metropolitan Australia, where infrastructure and service-provision are largely beyond the reach of centralised metropolitan governments, the NSW RFS operates most effectively when members of the public voluntarily participate in its production (Uzochukwu and Thomas, 2018). However, local co-production consultation within the Australian milieu can be superficial (Wiewiora *et al.*, 2018). Interdependency between service providers and service users creates a matrix of interaction and participation requiring effective mechanisms for place-based participation in the decision-making and production processes to ensure bespoke local solutions are informed by local knowledge. Bovaird (2007) found that in general, government is often reluctant to share authority with local communities or enact local place-based co-production, thereby creating significant barriers to local voice and local choice (Meijer, 2016). As we shall see, the NSW RFS endeavours to establish place-based co-production systems. However, it operates within a strict regulatory framework with various constraints.

In Australia, national natural disasters have been subject to a variety of official inquiries. For example, a Royal Commission into National Natural Disaster Arrangements (RCNNDA) was finalised in 2020 (RCNNDA, 2020), in addition to a Royal Commission investigating the tragic ‘Black Saturday’ fires in Victoria (Victorian Bushfires Royal Commission (VBRC), 2009). Both Royal Commissions offered detailed information on rural fire organisations, including the coordination and resourcing of rural fire brigades. Various documents produced by the Australian Bushfire and Natural Hazards CRC has prompted further scholarly debate on the question. For example, a recent report on attracting and supporting new volunteers through non-traditional methods has underlined the national importance of the co-production model in non-metropolitan Australia (Dunlop *et al.*, 2022). In this paper, we seek to add to this nascent literature by considering co-production in the RFS in NSW.

3. VOLUNTEER BUSH FIREFIGHTING IN AUSTRALIA

The vast distances between rural settlements in colonial Australia, together with the sparse population, necessitated the establishment of local firefighting brigades operated by local volunteers (McLennan and Birch,

2005). As a result, there are presently some 220,000 volunteers distributed amongst thousands of local fire brigades across Australia. Table 1 provides a summary of volunteer numbers as well as state and territory rural fire services and local fire groups across the seven Australian state and territory jurisdictions:

Table 1. Australian State and Territory Rural Fire Services, Brigades and Volunteers. Source: O'Halloran and Davies (2020).

State/Territory	Fire Agencies	Number of Volunteers	Number of Rural Brigades
ACT	ACT Rural Fire Service	413	9
NSW	NSW Rural Fire Service	72,491	2,002
NT	Bushfires NT	500	22
Queensland	Queensland Rural Fire Service	33,000	1,400
SA	SA Country Fire Service	13,500	425
Tasmania	Tasmania Fire Service	4,800	230
Victoria	Country Fire Authority	54,621	1179
WA	Department of Fire and Emergency Services (Rural Fire Division), Local Government Bush Fire Brigades	25,000	750

4. NEW SOUTH WALES RURAL FIRE SERVICE

Genesis of the NSW RFS

The NSW RFS is the world's largest volunteer fire service. In its present form, the NSW RFS was established under the *1997 Rural Fires Act* which created rural fire districts based around existing local government boundaries (NSWRFS, 2020). The NSW RFS has its origins in the small town of Berrigan in southern NSW, where in 1896 the first volunteer fire brigade was established (NSWRFS, 2020). As we can see from Table 2, provision for fire-fighting services had already been firmly entrenched in various legislative acts that prescribed responsibility for preventing, containing, and extinguishing fire in NSW. Until 1997, fire-fighting in regional, rural, and remote NSW was primarily the responsibility of local government, which enjoyed the power to create fire brigades and enforce

regulatory fire policies within each local council jurisdiction. However, in 2000 the NSW Parliament approved the transfer of fire control and district staff to the NSW Government to create a single state-wide fire service (NSWRFS, 2000, p. 2).

Table 2. New South Wales Fire Fighting Legislation. Source: NSW Legislation (nd).

Date	Legislation	Purpose
1852	Act for Establishing Municipal Institutions- Section 72	Councils may enact bylaws for the regulation, prevention and extinguishing of fires.
1866	Preventing the Careless Use of Fire Act	Careless use of fire could be punished by a substantial fine, or by imprisonment with, or without hard labour.
1884	Fire Brigades Act (No. 3)	Established the Fire Brigades Board in the Sydney Metropolitan District and Municipalities. This Act established and maintained an efficient fire brigade and took over from the Insurance Companies Fire Brigades.
1901	Careless Use of Fires Act	Revised in 1906 and 1912
1906	Local Government Act	Ensured that fire brigades could be formed through local councils in non-metropolitan areas.
1919	Local Government Act	Enabled and facilitated the local management of firefighting in local areas.
1930	Bush Fires Act	Enabled local councils to appoint an officer to control and manage bush fire brigades.
1932	Local Government (Bush Fires) Amendment Act	Gave authority and powers to bush fire brigade captains and deputy captains.
1942	Bush and Rural Fires Prevention Order	Represented part of the National Security Act that established a number of restrictions and requirements surrounding fire prevention.
1946	Economic Stability and War Time Provisions Continuance Act	Provided the Minister with the ability to prohibit lighting of fires in open areas.
1949	Bush Fires Act	Established a bush firefighting fund with the following entities contributing a stipulated proportion of its revenue: Colonial Treasurer (25%), local councils (25%) and insurance companies (50%). Funds were used to enable local government to purchase equipment for their volunteer fire brigades. The new Act also incorporated the Careless Use of Fires Act and the Bush Fires Act of 1930, and amendments to the 1919 Local Government Act.
1997	The Rural Fires Act (No. 65)	Established rural fire districts based around existing local government boundaries and simplified the manner in which the NSW RFS was organised

Funding the NSW RFS

The Rural Fires Act 1997 (No. 65) prescribed the core activities of the NSW RFS and detailed how it would be funded through the NSW Rural Fire Fighting Fund (NSW Government, 2020). Under the Act, the NSW Treasurer pays an annual contribution to the NSW Rural Fire Fighting Fund each financial year. In addition, affected local councils pay a contribution of no more than 11.7 percent of the funding target applicable to their district. Other contributors to the NSW Rural Fire Fighting Fund include the NSW Government at 14.6 percent and the insurance industry at 73.7 percent. The insurance industry contribution derives from its annual insurance premium revenue, which is imposed as a condition of doing business in NSW. This funding pays for core response activities of the RFS (NSW Government, 2020).

Table 3. New South Wales Rural Fire Service. Source: NSW RFS, 2000/2001; NSW RFS, 2001/2002; NSW RFS, 2002/2003; NSW RFS, 2003/2004; NSW RFS, 2004/2005; NSW RFS, 2005/2006; NSW RFS, 2006/2007; NSW RFS, 2007/2008; NSW RFS, 2008/2009; NSW RFS, 2008/2010; NSW RFS, 2010/2011; NSW RFS, 2011/2012; NSW RFS, 2012/2013; NSW RFS, 2012/2014; NSW RFS, 2014/2015; NSW RFS, 2015/2016; NSW RFS, 2016/2017; NSW RFS, 2017/2018; NSW RFS, 2018/2019.

Financial Year	Total Funding	Salaried Staff Numbers	Number of Rural Fire Brigades	Volunteers Numbers	Annual Number of Incidents
2000/2001	Over \$93,000,000.00	161	2,164	68,350	*
2001/2002	\$113,070,000	490	2,259	65,395	10,056
2002/2003	\$120,731,000.00	570	2,099	67,058	20,381
2003/2004	*	619	2,094	69,375	18,812
2004/2005	\$134,176,000.00	649	2,069	70,964	17,342
2005/2006	\$140,000,000.00	680	2,100	70,745	19,590
2006/2007	\$168,000,000.00	685	2,077	71,441	20,186
2007/2008	\$198,000,000.00	710	2,058	70,159	17,569
2008/2009	\$211,000,000.00	752	2,065	70,701	19,474
2009/2010	\$216,000,000.00	822	2,051	70,552	20,146
2010/2011	\$257,000,000.00	920	2,039	70,448	18,830
2011/2012	\$271,000,000.00	942	2,036	70,246	18,913
2012/2013	\$303,128,000.00	846	2,031	71,976	23,436
2013/2014	\$331,116,000.00	822	2,053	73,746	23,375
2014/2015	\$332,900,000.00	824	2,032	74,516	23,148
2015/16	\$361,600,000.00	855	2,029	73,162	23,520
2016/2017	\$372,400,000.00	878	2,021	73,223	24,582
2017/2018	\$385,775,000.00	911	2,002	72,491	26,903
2018/2019	\$444,492,000.00	936	1,994	71,234	30,102

*Data not available

Table 3 outlines NSW RFS annual income, the number of salaried staff, the number of non-metropolitan fire brigades in NSW, the number of volunteers, and the annual number of fire incidents. As the largest volunteer fire service in the world, the NSW RFS expends a great deal of time and effort in training volunteers. For example, it has developed a Public Safety Training Package, a national level qualification in which training ranges from basic firefighting to group leader training. Moreover, the NSW RFS provides training to the NSW Police, metropolitan NSW fire brigades, and fire services in other countries (NSW RFS, 2001/02, p. 15). Training volunteers and professional firefighters in fire management skills, together with the export of firefighting technology to other countries, represents a significant source of revenue. The NSW RFS has been successful in this respect since its training programs are highly regarded (NSW RFS, 2001/02, p. 19). Communication about fire safety also constitutes a core activity of the NSW RFS. In this respect, school and community education programs represent a vital component of its efforts to ameliorate some of the more catastrophic effects of fires in non-metropolitan NSW, where outside help may not be readily available.

5. NEW SOUTH WALES RURAL FIRE SERVICE AND THE 2019/20 BUSHFIRE CONFLAGRATION

The NSW bush fire season began much earlier than expected in July 2019 (Davey and Sarre, 2020). 2019 was Australia's hottest and driest year on record, with the rainfall average about 40 percent lower for much of the country (Filkov *et al.*, 2020, pp. 45-46). In particular, NSW experienced its most severe drought on record, with 98 percent of the state affected by drought conditions (NSW RFS, 2019/20, p. 6), which was exacerbated by high temperatures. This served to reduce soil moisture further and render landscape even drier. The Australian Forest Fire Danger Index (FFDI) reflected the prevailing climatic conditions; its combined measure of temperature, humidity, wind speed and dryness of available fuel was the highest ever recorded (NSW RFS, 2019/20, p. 6). The combination of drought, record high-temperatures, low soil-moisture, and windy conditions created the perfect conditions for a number of lethal bushfires (Filkov *et al.*, 2020, p. 49). This paved the way for a summer colloquially known as the 'summer from hell' (Davey and Sarre, 2020, p. 47).

After the last fire was extinguished, the quantitative effects of NSW's bushfires were devastating: 5.5 million hectares of the state had burned; 26 people, including four NSW RFS volunteers and three international

firefighting personnel, had died; 2, 476 homes were destroyed; \$899 million of critical infrastructure was lost; \$43 million worth of essential telecommunication sites were destroyed, and 601, 858 hectares of agricultural pasture was damaged (NSW Government, 2020, p. XXI). Furthermore, the loss of wildlife was immense. Royal Commission (2020, pp. 5-6) estimated that almost 3 billion native animals perished during the fires and for the remaining native animals, like koalas, 25 percent of suitable habitat in NSW had been destroyed (NSW Government, 2020, p. 243). Other dimensions of the bush fires, such as their economic, social, and psychological impact upon volunteers, non-metropolitan communities and wildlife, are more difficult to measure.

Work on identifying the primary causes of the 2019/20 bush fires started almost as soon as the fires began in 2019 and concluded that the fires were caused by a ‘constellation of factors’ (Institute of Foresters of Australia and Australian Forest Growers, 2020; Morgan *et al.*, 2020; NSW Government, 2020, p. 21). While climate change was cited as the most significant causal factor (Jalaludin and Morgan, 2021, pp. 4-6), other contributing influences played a significant role in the spread, ferocity, and severity of the fires. For instance, lightning strikes combined with a very dry landscape seem to have played a pivotal role in most of the fires across NSW (NSW Government, 2020, p. 28). Moreover, deliberate arson and human error were significant causes of many fires. Indeed, 63 offences of arson were recorded under the *Crimes Act 1900*, with 59 fires deliberately lit, 11 of which with intent to generate a bushfire (NSW Government, 2020, p. 29). Human error and sheer carelessness caused much devastation (Read, 2019), resulting in then NSW Premier Gladys Berejiklian declaring three state-wide State of Emergencies (NSW Government, 2020, p. 108). This served to alter the NSW RFS chain of command by placing the NSW Minister for Police and Emergency Services in charge of the coordination of agencies and the allocation of resources (NSW Government, 2020, pp. 107-8; NSW RFS, 2019/20, pp. 6-7).

The NSW RFS is controlled by a complex bureaucratic structure. The *Rural Fires Act 1997*, which is the overarching legislative foundation of the NSW RFS, provides *inter alia* for coordinated firefighting arrangements, particularly the prevention, mitigation, and suppression of bush fires in local government areas in non-metropolitan parts of NSW, which are constituted as rural fire districts (NSW Government, 2020, p. 107). In addition to establishing the NSW RFS, the Act established the Bush Fire Coordinating Committee (BFCC), whose chief responsibility is the coordination of firefighting outside of urban areas (NSW Government, 2020). At the local level, the Act creates Bush Fire Management

Committees (BFMC), which work alongside the BFCC to oversee bush fire preparedness, in addition to managing cross-agency problems. During the 2019/20 bush fires, cross-agency problems proved challenging due to competing interests and jurisdictional obligations (NSW Government, 2020, p. 110), given the fact that four NSW agencies are tasked with the responsibility for firefighting: the NSW RFS, the National Parks and Wildlife Service, Fire and Rescue NSW and the Forestry Corporation of NSW (NSW Government, 2020, p. 117).

Under Section 44 of the *Rural Fires Act 1997*, the NSW RFS Commissioner may assume control of firefighting operations if s/he considers the bush fire too severe for the capabilities of the local fire authorities. During the 2019/20 bushfires, 43 Section 44s were declared by the NSW RFS Commissioner (NSW Government, 2020, p. 108). The first Section 44 was declared by NSW RFS Commissioner Fitzsimmons on 10 August 2019 (NSW Government, 2020, p. 107), resulting in all resources in the area in question falling under the responsibility of the Section 44 Incident Controller (NSW Government, 2020, pp. 108, 274-5), who was appointed by the NSW RFS Commissioner. The Incident Controller reports directly to State Operations and it, in turn, determines the overall local firefighting strategy. The Incident Controller forms an Incident Management Team (IMT) comprised of interagency personnel. During the 2019/20 bushfire season, 18 IMTs were formed and they managed large geographic areas that possessed multiple fire fronts (NSW Government, 2020, p. 276). Responsible for firefighting in more than 1,200 towns and villages, in 2019/20 the NSW RFS was comprised of 2,002 rural fire brigades with 71, 234 NSW RFS volunteers. These volunteers had an average age of 51 years and 22 percent of them were women. Most were qualified, with nearly 70 percent of the volunteers holding firefighting qualifications (NSW Government, 2020, p. 118). Volunteer firefighters, including interstate and international personnel, completed over 277, 415 firefighting shifts, each 12 hours long (NSW Government, 2020, p. XXI), and NSW RFS volunteers completed more than 186, 000 shifts (NSW RFS, 2019/20, p. 27), often risking their own lives and livelihoods in the process (NSW Government, 2020, p. 249). The NSW RFS encountered a significant number of problems during the fire season. For example, logistical problems associated with feeding firefighters in remote locales resulted in many firefighters lacking adequate nutrition (NSW Government, 2020, pp. 272-274). Similarly, fatigue and mental stress were evident, with many RFS volunteers enduring extremely unpleasant conditions (NSW Government, 2020, p. 267-271), together with a lack of

safety equipment. Safety equipment, including Personal Protective Clothing (PPC), Personal Protective Equipment (PPE), and vehicle safety devices were in short supply for many NSW RFS volunteers. For example, a submission from the NSW Rural Fire Service Association to the NSW Government Bush Fire Enquiry noted that many volunteers lacked adequate respiratory equipment. Moreover, many did not have more than one set of PPC and numerous brigades faced significant danger from older, unsuitable vehicles which did not possess modern protective systems, like fire curtains, electric hose reels or spray systems (NSW RFSA, 2020, pp. 9-12). The NSW Government acknowledged this and admitted that resources were stretched and insufficient PPE, PPC, and vehicle protection systems were provided (NSW Government, 2020, pp. 73, 259-274).

Australian reliance on volunteer firefighters is far from unique. For instance, Russia, the USA and many parts of Europe have large brigades of volunteer firefighters in addition to substantial professional brigades (NSW Government, 2020, p. 254). However, the heavy reliance in NSW on volunteers represented a significant weakness in its approach to fire mitigation. Prior to the 2019/20 bushfire season, NSW had experienced three years of severe drought that had reduced the availability of NSW RFS volunteers (NSW Government, 2020, p. 250). This placed a greater burden on interstate and international personnel who did not possess the requisite local knowledge of local areas (NSW Government, 2020, p. 251). Communication was problematic and it highlighted the weaknesses of many systems within the NSW RFS, as well as the disaster management agencies responsible for managing firefighting operations. For example, many NSW RFS crews were left in dangerous and vulnerable circumstances because IMTs could not accurately pinpoint where firefighters were situated because the majority of the fleet did not have automatic vehicle location capability, radio and mobile phone coverage in remote areas was not reliable, and not all NSW RFS vehicles were equipped with the necessary mapping capabilities (NSW RFSA, 2020, pp. 12-15). Despite being responsible for determining the overall firefighting strategy of an area, IMTs lacked integrated communication systems and necessary staff. Moreover, they were managed by the NSW RFS which was 'stretched beyond its capacity' and operating with 'too few resources available to adequately respond to such a large event' (NSW RFSA, 2020, pp. 16-17).

6. CO-PRODUCTION SYNERGIES IN THE NEW SOUTH WALES RURAL FIRE SERVICE

As we have seen, the NSW RFS represents an example of local coproduction that combines the comparative institutional advantages of formal public sector entities, notably the NSW government and NSW local councils, private sector companies, like the insurance industry, professional firefighting management and staff employed by the NSW RFS, and thousands of volunteer firefighters around NSW. Each of these participating partners possesses comparative institutional strengths and weaknesses. Thus public sector organisations in the form of the NSW government and NSW local authorities enjoy tax-based income that guarantees a steady income to the NSW RFS to adequately fund its operations. This serves to address the well-known problem of ‘philanthropic insufficiency’ (Salamon, 1987) or the chronic inability of most voluntary organisations to generate resources on a scale sufficiently adequate and reliable to fund a given voluntary program. In addition, these public sector partner organisations possess the power to enact legislation and pass municipal bylaws to thereby provide the official legislative foundations for the ongoing operations of the NSW RFS.

By contrast, the managerial professionalism of the NSW RFS salaried staff, who plan and control the day-to-day operations of the overall NSW RFS partnership, constitutes a comparative institutional strength frequently absent in voluntary organisations. In the absence of this kind of professional oversight, voluntary entities are often afflicted by what is sometimes termed ‘philanthropic amateurism’ (Salamon, 1987) exemplified by inadequate administration and management skills on the part of volunteers. Thirdly, the prescriptive legislative mandate enjoyed by the NSW RFS in its operations which is provided by the NSW government and participating local councils, as well as the administration and management delivered by the NSW RFS salaried staff, act to mitigate problems that sometimes affect purely voluntary organisations in the form of ‘philanthropic particularism’ and ‘philanthropic paternalism’ (Salamon, 1987). Philanthropic particularism describes the tendency of voluntary entities to concentrate on specific subgroups of the population rather than the population at large. This can distort the assistance provided by voluntary organisations. By contrast, philanthropic paternalism denotes excessive reliance on voluntary organisations to define the needs of those groups of persons they assist. It can also lead to a misrepresentation of the nature of the voluntary service that is required.

Finally, volunteers themselves possess a powerful comparative advantage in several respects. Scholars working in the government failure tradition, like Wolf (2003), have argued that notwithstanding the comparative institutional strengths of public entities and formal bureaucracies, they also typically manifest systematic weaknesses, especially bureaucratic rigidity and an absence of flexibility. In terms of comparative institutional advantage, Salamon (1987, p. 39) has proposed that ‘the “transactions costs” involved in mobilizing a governmental response to shortages of collective goods tend to be much higher than the costs of mobilizing voluntary action’. For instance, prior to governmental intervention, ‘substantial segments of the public must be aroused, public officials must be informed, laws must be written, majorities must be assembled, and programs must be put into operation’. This contrasts sharply with voluntary organisations. In the civic realm, ‘to generate a voluntary sector response, a handful of individuals acting on their own or with outside contributed support can suffice’. Consequently, ‘it is reasonable to expect, therefore, that the private, non-profit sector will typically be the first line of response to perceived “market failures” (Salamon, 1987, pp. 39-40), and that government will only be called on only as the voluntary response proves insufficient’. Thus ‘government involvement is less a substitute for, than a supplement to, non-profit action’. In firefighting, local volunteers bring vital detailed local knowledge and high levels of enthusiasm typically absent in the public sector.

As we have seen from the analysis of the 2019/20 Bushfire Conflagration in section 5, despite the manner in which the operations of the NSW RFS synchronize the comparative institutional advantages of its constituent elements, the NSW RFS’s performance was far from optimal. For instance, communication difficulties not only hampered the conduct of firefighting activities but also served to endanger the lives of volunteer firefighters. Similarly, shortages in safety equipment likewise threatened the wellbeing of firefighters.

7. CONCLUSION

In this paper, we have considered the NSW RFS as a case study of local co-production in the provision of firefighting services in non-metropolitan NSW. As we have seen, the NSW RFS represents a co-production partnership embracing the NSW RFS professional secretariat, the NSW government and local councils, the insurance industry, and a multitude of voluntary firefighters, who conduct firefighting activities on the ground.

We examined this collaborative partnership using the analytical lens offered by the local co-production literature. Our analysis has shown that the ongoing success enjoyed by the NSW RFS local co-production exercise is largely due to the manner in which it has harnessed the comparative institutional advantages of its constituent entities. The mutually reinforcing synergistic relationships between the participating groups involved in the NSW RFS local co-production arrangements have spawned at least two substantial external benefits to the NSW population at large. In the first place, given the voluntary involvement of local residents, the costs associated with firefighting and fire protection are much lower than if these services had been provided by public agencies or the private sector. Secondly, given the substantial number of local volunteers involved in firefighting in non-metropolitan NSW, collaborative local co-production through the NSW RFS generates considerable social capital amongst the NSW population. Much remains to be done.

Future research into the operation of the NSW RFS could fruitfully delve more deeply into the NSW RFS by interviewing participants drawn from all of its partner entities. Moreover, research on how the NSW RFS co-production model compares with co-production models in other jurisdictions, both nationally and internationally, would prove insightful. In particular, it could seek to garner further information about operational and funding models, volunteer motivation, and co-production synergies. This could further illuminate the operational strengths and weaknesses of the NSW RFS and offer valuable insights to public policymakers. In addition, researchers could consult firefighting personnel who participated directly in the 2019/20 NSW bushfire conflagration and determine from them the operational difficulties and equipment shortages they encountered in order to develop effective remedial measures.

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