# Chapter 6

## Urban salinity: a sleeping giant?[1]

> The largest economic impacts of dryland salinity are not really on agricultural production… The largest economic impacts are likely to be on urban infrastructure and on other public assets such as biodiversity.[2]

6.1 During this inquiry the issue of urban salinity emerged as a neglected area in regard to community awareness, urban development, funding and mitigation. This neglect is of concern, as urban salinity has the potential to become a significant problem with a considerable economic impact on the community. This chapter outlines what urban salinity is, the impact and extent of salinity in the urban environment and its potential cost.

6.2 The Committee heard concerns that current land re-zoning and urban development practices have little regard for salinity. While criticisms were levelled at some local governments, the Committee heard evidence that many local governments are actively engaged with the issue of urban salinity. However, for wider action and effectiveness, local governments need greater support to meet this challenge.

6.3 This chapter outlines current approaches to address urban salinity and highlights the need to engage a range of stakeholders. The Committee argues the need to provide adequate funding and support and for a greater focus on urban salinity in current NRM programs.

### What is urban salinity?

6.4 In Sydney, Ms Sian McGhie, the Senior Natural Resource Officer from the New South Wales Department of Natural Resources, tabled a set of documents from the Local Government Salinity Initiative, which dealt with many aspects of urban salinity. One publication defined urban salinity as:

> The redistribution of salts, and the impact these salts have on our urban environment. Salt is a natural part of the Australian landscape. Urban salinity occurs in areas where humans have changed natural ecosystems and affected the movement and storage of salt and water in the environment.[3]

6.5 Urban salinity occurs as a result of a combination of excess water and salt in the environment. The Victorian Department of Primary Industries argued that as with salinity in non-urban areas, the processes vary from region to region according to

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1 Mr James Phillips, Private Capacity, *Committee Hansard*, 10 February 2006, p. 11.

2 Mr Andrew Campbell, Land & Water Australia, *Committee Hansard*, 6 September 2005, p. 17.

3 New South Wales Government, Department of Infrastructure, Planning and Natural Resources, *Introduction to Urban Salinity*, 2003, p. 1.

differences in geology, geomorphology (landforms) and climate. Urban salinity occurs when:

> Deep-rooted native vegetation is cleared and replaced with shallow-rooted garden plants and lawns, which use much less water. This creates an imbalance in the water cycle, allowing large amounts of water to escape past the root zone and down to the underlying groundwater (referred to as 'groundwater recharge'). The installation of roads, buildings and other infrastructure can also alter natural drainage patterns, while other sources of excess water may result from leaking sewerage, stormwater and water pipes.
>
> Over time, the groundwater system fills, bringing with it dissolved salts that had been stored in weathered rocks deep below the surface and from other sources … Where salty groundwater rises to within about 1.5 metres of the soil surface, it is drawn up by capillary action to form 'saline groundwater discharge' sites. These sites most often occur in low-lying areas.[4]

6.6 A number of submitters highlighted that urban salinity is, in part, due to increased pressures placed on the environment by modern urban living. Dr Petrina Quinn from the Central Riverina Landcare Network and Murrumbidgee Landcare Association argued:

> I believe the public perception with respect to the rising saline water-tables was not that our City and Shire forebears engaged in poor planning, development and residential practices. Rather, rapid growth and an acceleration in our average consumptive use of water, continued low density living accompanied by Californian-style gardens, frequently with sizeable swimming pools, public recreational space demands and so forth overtook capacity in the major regional centres.[5]

6.7 The Australian Local Government Association also submitted that current land practices in the urban environment contribute to an increasing salinity problem:

> Land use and development activities can have an impact on salinity – for example through vegetation removal, by earthworks that may alter local drainage patterns, or by land uses that may affect the amount of water entering the watertable. In addition, urban development can exacerbate salinity through increasing groundwater recharge from run off, increased watering of gardens and altering drainage flows and levels.[6]

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4 Victorian Government, Department of Primary Industries website, What is urban salinity, :http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/urban_salinity_what (accessed 21 February 2006).

5 Central Riverina Landcare Network and Murrumbidgee Landcare Association, *Submission 48*, p. 2.

6 Australian Local Government Association, *Submission 13*, p. 3.

## Extent and impact of urban salinity

6.8 An appreciation of the significance of urban salinity is a fairly recent occurrence. In 2000 the National Land and Water Resources Audit (NLWRA) identified urban salinity as having an adverse effect on infrastructure (houses, roads, bridges etc.) in both rural and urban areas.

6.9 The Committee heard that urban salinity was a major problem in a number of regional New South Wales towns, such as Wagga Wagga, Yass, Boorowa, Parkes, Forbes and Cowra. Mr Robert Gledhill told the Committee that:

> At the main cricket ground at Boorowa, salt patches are coming through. You drive past some of the brick homes and you can see the white salt going up the side. We are all aware of that. You see the plaster falling out from between the bricks. There is rising damp in our courthouse.[7]

6.10 In WA, salinity affects a number of rural towns, with 38 towns involved in the state's Rural Towns Program (discussed later in the chapter).[8]

6.11 In Wagga Wagga, Mr Bryan Short from the Wagga Wagga City Council told the Committee of some of the symptoms of urban salinity:

> Just to give you a quick flip through what some of the symptoms of urban salinity are, it is springs popping up in the middle of roads, in nature strips and in footpaths, footpaths that remain damp all year, water seeping into gutters and salt stains on your gutter, salt marks.[9]

6.12 In Western Australia, local governments also have to deal with the impact of salinity on civic infrastructure. Councillor Clive Robartson from the Western Australian Local Government Association told the Committee:

> In terms of impacts of salinity on local government, there are a number of salinity impacts local governments are increasingly having to respond to. These include the direct effects of salinity on infrastructure—that includes roads and drainage networks—and its impact on urban centres.[10]

6.13 The Committee heard that the effects of salinity on buildings can be significant, as saline water travels up brick work and eventually corrodes the bricks themselves:

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7 Mr Robert Gledhill, Lachlan Catchment Management Authority, *Committee Hansard*, 10 February 2006, p. 35.

8 WA Department of Agriculture website, www.agric.wa.gov.au/pls/ (accessed 14 November 2005).

9 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 42.

10 Councillor Clive Robartson, Western Australian Local Government Association, *Committee Hansard*, 18 November 2005, p. 77.

There are areas in the old original brickwork that you can put your hand through. Underneath the houses you can … start getting this hour-glass effect where the brick pier could eventually fail if that was allowed to continue. In another house, fortunately the majority of its structure was hardy plank. In the veranda column you can see the impact of salinity on the brickwork.

Most of the houses in this area, which is probably about 80 years old, are double brick on the outside and brick walls inside … as the damp course fails, because these houses are 50 or 60 years old, the water starts to seep up the walls and you get the plaster starting to fall off the walls.[11]

Photograph: Salinity damage to brickwork, Wagga Wagga, NSW

6.14 Dr Suzanne Wilson outlined the range of infrastructure that can be affected by salinity:

- roads (including gutters and culverts) and bridges;
- stone and brick buildings;
- footpaths, driveways and other concert structures;
- water, stormwater and sewerage systems;

11 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 42.

- powerlines, fences and other steel structures; and
- railway lines.[12]

6.15 The Committee heard from a number of government organisations, who all discussed the range of civic infrastructure damage by salinity. Mr Geoff Fishburn highlighted the impact of salinity on roads:

> I have seen the impacts of salinity on the Sturt Highway between Wagga and Narrandera. There are a number of areas on that road that have been repaired repeatedly because of the impact of the rising water tables. I used to travel the catchment quite a bit. I would see the local council grading the table drains, and I would see the seepage come up straight through the grade each time. The roads were very severely impacted in a number of areas and repaired repeatedly.[13]

6.16 Local governments argued that the impact of salinity on council-managed infrastructure was considerable. In particular concerns were raised over the impact of salinity on buried pipes. The Committee heard that in Western Sydney councils were expecting pipes in certain areas to fail as a result of salinity. It is anticipated that this situation will present local government with a significant and unfunded problem in the not-to-distant future.[14]

### *Costs of urban salinity*

6.17 While the Committee did not receive any figures on the cost nationally of urban salinity, witnesses acknowledged that costs are significant and are rising. The Local Government Salinity Initiative publication, *Costs of Urban Salinity*, provides an overview of the literature on the economics of urban salinity and notes that a cost-benefit analysis is most commonly used to cost the effects of urban salinity. However, the publication notes that such a method cannot adequately assess the environmental and social consequences of salinity in the urban environment.[15]

6.18 Mr Geoff Fishburn from the NSW Department of Natural Resources told the Committee that the costs of urban salinity may exceed those for agriculture:

> It is also becoming apparent that the financial impact on urban infrastructure, buildings and businesses will possibly be even greater than the cost impact on agriculture. These costs will impact on local

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12 S. Wilson, *Understanding and preventing impacts of salinity on infrastructure inn rural and urban landscapes*, www.southburnett.com.au/pdfs/saliitynov2003.pdf (accessed 20 November 2005).

13 Mr Geoff Fishburn, NSW Department of Natural Resources, *Committee Hansard*, 14 October 2005, p. 9.

14 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 22.

15 New South Wales Government, Department of Infrastructure, Planning and Natural Resources, *Costs of Urban Salinity*, 2003, p. 1.

> government, domestic households, commercial and industrial businesses, state government agencies and public utilities.[16]

6.19 Similarly, Mr Andrew Campbell from Land & Water Australia forecast the looming and significant costs of urban salinity, arguing that urban infrastructure along with other public assets such as biodiversity would be more severely economically affected than agricultural production.[17]

6.20 The Australian Local Government Association highlighted the cost of salinity to local government across a wide range of infrastructure:

> Salinity has economic costs to councils in terms of the costs of repair and maintenance, replacement and shortened lifespans of assets. Salinity causes damage to a whole range of urban infrastructure, including housing, playing fields, footpaths, parks, gardens and trees, piping (gas, water and electricity), stormwater systems, roads and bridges. This can have a significant impact on council planning activities and can restrict funding available for other essential services provided by councils.[18]

6.21 In Wagga Wagga, the Committee heard from Mr Robert Green who argued that costs for infrastructure replacement as a result of salinity in that shire were enormous and were currently not being met:

> If we take Wagga City Council specifically in costs of infrastructure, people will acknowledge that we are way behind in terms of broad infrastructure. A study about three years ago showed that we need $146 million spent on infrastructure generally, which means we should be spending $20 million a year to catch up. We are spending about $6 million. The proportion of that attributed to salinity is probably reasonably subjective, but certainly a large part of that relates to salinity.[19]

6.22 Mr Geoff Fishburn, from the Department of Natural Resources told the Committee that salinity was estimated to cause approximately $9 million in damage to roads and highways in the south-west of NSW.[20]

6.23 The Local Government Salinity Initiative publication, *Costs of Urban Salinity*, notes that in New South Wales:

> Roads and bridges were by far the most important expenditure item identified for local councils. Of the total $8.2 million of repair and maintenance expenditure on infrastructure damaged by salinity or rising

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16 Mr Geoff Fishburn, NSW Department of Natural Resources, *Committee Hansard*, 14 October 2005, p. 3.

17 Mr Andrew Campbell, *Committee Hansard*, 6 September 2005, pp 19-20.

18 Australian Local Government Association, *Submission 13*, p. 2.

19 Mr Robert Green, Go-Green Services, *Committee Hansard*, 10 February 2006, p. 5.

20 Mr Geoff Fishburn, NSW Department of Natural Resources, *Committee Hansard*, 14 October 2005, p. 2.

> watertable over the twelve-month accounting period surveyed, 85% was attributed to repair and maintenance of roads and bridges.[21]

6.24 Mr Bryan Short from the Wagga Wagga City Council highlighted the diminished life of infrastructure as a result of salinity damage:

> What invariably happens in terms of cost to the community and the impact on infrastructure is that it effectively reduces your road lot by about half. A road like that is probably about $1 million a kilometre. At one of the local hospitals the car park was only about three years old and it just started to collapse. When I say 'half-life' sometimes it is even a lot less than that.[22]

## Urban planning and regulation

### *Rezoning for urban development*

6.25 In light of the significant costs and the threatening scale of the problem, it was not surprising that concerns were raised over urban development planning and regulation issues. The Committee heard evidence from a range of witnesses concerned that governments did not adequately consider the long-term implications of salinity in the urban environment when making land available for housing developments. The Western Sydney Regional Organisation of Councils (WSROC) raised concerns that land was being released for housing development, which will impact downstream on areas already negatively affected by salinity:

> [T]he state government has recently released plans for growth centres in that area. WSROC is particularly concerned about that issue because of the previous environmental issues for that area. The major growth centre that they are proposing in the Bringelly area in the south-west of Sydney will impact on the other part of the South Creek catchment. We think that may well have downstream impacts on the ground water and on salinity in areas that are already suffering salinity… Unfortunately, the information that has been released from the state government on the growth centre has not covered anything that deals with this particular issue, so we are not aware of what has been done in that area.[23]

6.26 The political pressure on state governments to release land for urban development is clearly immense, as is the implication that public knowledge of salinity impacted land could have significant detrimental effects on the real estate market:

> As to that Western Sydney situation, two or three years ago the development was just snowballing. It was just this monster that kept going.

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21 New South Wales Government, Department of Infrastructure, Planning and Natural Resources, *Costs of Urban Salinity*, 2003, p. 3.

22 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 42.

23 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 17.

> I think I can say this here. One state minister said: 'Well, I can't stop it. If I stop the development now to take account of the salinity which we know we're going to develop, all hell will break loose in the real estate market in terms of costs and whatever, so we'll just let it roll out.' I understand that places around Penrith are going to have massive salinity issues, and houses have now been built on there.[24]

6.27 As discussed in Chapter 3, the Committee also heard evidence that was critical of some local governments in regard to rezoning for urban development in salinity prone areas. It was argued that some councils were either unaware of some of the issues to do with salinity or simply chose to ignore them. The Hunter-Central Rivers Catchment Management Authority stated that 'there appears to be limited regulatory will to limit' the future impact of salinity.[25]

6.28 The ACF submitted that support from local government for sustainable land use was contingent on a variety of factors:

> Local government support for sustainable land use still seems largely contingent on local political will, local resources and initiative, as well as persuasion from and good working relations with regional bodies.[26]

6.29 As discussed in Chapter 4, the ACF put forward a recommendation that regional bodies be granted referral powers on land-use planning decisions as a means of ensuring that decisions reflected natural resource management standards.[27]

6.30 At a public hearing in Canberra, Mr Corey Watts from the ACF expanded on this recommendation, noting that regional bodies would need to be functioning at an acceptable standard to take on this role. He noted that regional bodies are potentially valuable partners to local government in the planning process:

> Where there is a certain level of development, they should have powers of referral so that where local government is developing land use plans, zoning plans and so on that these are referred to the catchment authority which is suitably qualified. They have obviously reached a level where they are capable of working with local government. They have the right information at their disposal to make good sound judgments.[28]

6.31 However, as discussed in Chapter 4, local government witnesses were opposed to the granting of legislative powers to regional bodies. It was argued this would lead to confusion over roles and responsibilities and lead to the perception that regional bodies formed another layer of bureaucracy. It was argued that there were

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24 Mr Robert Green, *Committee Hansard*, 10 February 2006, pp13 – 14.

25 Hunter-Central Rivers Catchment Management Authority, *Submission* 2, p. 3.

26 Australian Conservation Foundation, *Submission 19*, p. 50.

27 Australian Conservation Foundation, *Submission 19*, p. 51.

28 Mr Corey Watts, Acting Manager, Land and Water Program, ACF, *Committee Hansard*, 28 February 2006, p. 35.

already sufficient legislative powers to achieve natural resource management outcomes. [29]

6.32 In light of these concerns, some submitters argued the need for greater federal government involvement. Mrs Sharon Fingland from WSROC claimed that the issue of urban salinity was so large that it required all levels of government to be involved as planned urban development often occurs with little regard of possible effects:

> Sometimes some of the decisions that are made at that level actually have consequences at the lower level, which we would argue are not always taken into account. That is why an issue like salinity, which is of such national importance, really needs all levels of government—firstly, to be aware that it is such a major issue and then to deal with it together. It is not something that just local government or just state government could deal with. We have tried to get the message across a number of times.[30]

6.33 Other witnesses were more positive about local government's role in salinity management and the dynamic between regional NRM standards and local government planning. Mr Forbes from the Department of Environment and Heritage told the Committee:

> Local governments, clearly, are very interested in some of the infrastructure questions, and I think local governments can actually learn a great deal from the regional construct and planning which has gone into the regional investment strategies and the underpinning work which has gone into creating those regional plans. So I think there is a linkage between the two, the planning process at the regional level and how it intersects with local government planning and how that will affect infrastructure, but infrastructure funding is not an issue that we have addressed.[31]

6.34 In Western Australia the Committee also heard support for a greater partnership between local government and the NRM regional process in regard to urban development and biodiversity conservation. Mr Nathan Malin from the Western Australian Local Government Association told the Committee:

> In urban areas, there are a couple of projects that are looking at parts of the south-west and also at the greater Perth metropolitan region. The association is very supportive. The South West Catchments Council and the Swan Catchment Council have two projects, the Perth Biodiversity Project, and now the South West Biodiversity Project, which is looking at building the capacity of local governments in relation to their natural area

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29 Australian Local Government Association, *Submission* 13, p. 3 & Local Government Association of Queensland, *Submission 8*, p. 3.

30 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard* 14 October 2005, p. 19.

31 Mr Malcolm Forbes, First Assistant Secretary, Australian Government Natural Resource Management Division, Department of Environment and Heritage, *Committee Hansard*, 28 February 2006, pp 37-38.

> management and having a strategy for how they reflect that in town planning schemes and their rezoning of some land… There was an identified need to try to improve the connectivity there and provide technical support to both the NRM regions and the local governments so that, over time, they can better incorporate those NRM considerations into their local planning strategies and town planning schemes.[32]

6.35 While the Committee was pleased to hear that partnerships are developing between local governments and regional bodies, which will ideally lead to more environmentally responsible planning decisions, the patchy involvement of local government in salinity management and NRM more broadly is somewhat alarming. The Committee appreciates that planning decisions are largely the regulatory responsibility of state and local governments; however there is a clear need for greater national leadership to encourage responsible planning by state and local governments.

### *Building codes*

6.36 The Committee heard that the Building Code of Australia (BCA) does not currently specify requirements for building in saline environments. Coupled with a lack of salinity specific data in urban areas, this lack of regulation leads to poor development in potentially saline environments:

> [T]he Australian Building Codes Board has recently issued a discussion paper relating to building in saline environments and therefore does not currently provide effective legislative requirements for new homes. … Urban salinity is triggered by different parameters than those in agriculture. The lack of salinity-specific data, particularly in the urbanising areas in the Hawkesbury-Nepean catchment, enables development to proceed in potentially saline hazardous areas without recognising the saline environment.[33]

6.37 The Building Code of Australia is produced and updated by the Australian Building Codes Board (ABCB). It is a performance-based code, which sets out the various technical provisions that buildings and other structures across Australia must meet. The BCA has been given the status of building regulations by all states and territories.[34]

6.38 The ABCB is a joint initiative of all levels of Australian Government and includes representatives from the building industry. It was established by an inter-governmental agreement in 1994. The ABCB is responsible for:

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32 Mr Nathan Malin, Western Australian Local Government Association, *Committee Hansard*, 18 November 2005, p. 79.

33 Mr Neville Pavan, Catchment Coordinator, Implementation, Hawkesbury-Nepean Catchment Management Authority, *Committee Hansard*, 14 October 2005, p. 60.

34 Australian Building Codes Board, *Submission 47*, p. 1 and ABCB website, http://www.abcb.gov.au/ (accessed 8 March 2006).

- developing and managing a nationally uniform approach to technical building requirements, embodied in the Building Code of Australia (BCA);
- developing a simpler and more efficient building regulatory system; and
- enabling the building industry to adopt new and innovative construction technology and practices.[35]

6.39 The Australian Building Codes Board is currently working towards incorporating broader salinity provisions in the BCA. The ABCB explained that only minimal attention is given to 'salt attack' in the current BCA. However, in September 2004, the Board released a discussion paper, *Buildings Subject to Attack from Salt and Acids Sulphate Soils*, for comments from government, industry and other stakeholders. The paper discussed the damage caused to buildings by salinity and put forward a proposal for amendments to the BCA. In accordance with the COAG Principles and Guidelines for Standard-setting Bodies, the proposal is being developed into a Regulation Document (RD) and a Regulation Impact Statement (RIS). It is anticipated this will be released for public comment and amended if necessary later this year.[36]

6.40 However, the Committee heard from one witness that inadequate resources are hampering this process:

> The Australian Building Codes Board voted in late 2001 to investigate the efficacy of the building code in relation to salinity. The discussion paper only came out late last year. I think they need some assistance; they are finding it difficult—their staff keeps changing, and getting the experts in there that know building as well as salinity has been an issue.[37]

6.41 The Committee heard that there are variations to the Building Code in some states to include salinity-specific provisions. Ms Sian McGhie from the NSW Department of Natural Resources stated:

> On the subject of state variations, at the moment there is a South Australian one for salinity and recently we adopted one in New South Wales, simply because this other process was taking so long.[38]

6.42 Witnesses argued that there was merit in unifying building codes:

> Other issues are guidelines in urban areas—looking at how we can bring in and unify the building codes and make sure that everyone is aware of what needs to be carried out.[39]

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35 Information taken directly from the ABCB website, http://www.abcb.gov.au/index.cfm?fuseaction=DocumentView&DocumentID=85 (accessed 8 March 2006).

36 Australian Building Codes Board, *Submission 47*, pp 2-3.

37 Ms Sian McGhie, Urban Salinity, NSW Department of Natural Resources, *Committee Hansard*, 14 October 2005, p. 12.

38 Ms Sian McGhie, Urban Salinity, NSW Department of Natural Resources, *Committee Hansard*, 14 October 2005, p. 12.

6.43 Mrs Sharon Fingland from WSROC also highlighted:

> …the need for national coordination of salinity management efforts including the housing and development industry, especially in relation to the BCA.[40]

6.44 The need for national salinity standards on the construction of roads was also raised in a submission from the Hawkesbury-Nepean Catchment Management Authority. The CMA argued that current national standards do not address the issues of salinity impacts on roads and other major infrastructure.[41]

## Addressing urban salinity

6.45 The Committee heard evidence that a range of programs and measures are currently in place to ensure that urban development in saline environments is minimised and that the effects of salinity on buildings and infrastructure is reduced. These include the use of mapping, revegetation programs, engineering programs, training programs and education programs.

### *Mapping*

6.46 As discussed in the previous chapter, the use of mapping to detect and plan for salinity has been particularly important in addressing issues of agricultural dryland salinity. Mapping also has a valuable role to play in urban development. In Wagga Wagga the Committee heard that the City Council has worked with the NSW State Government to develop salinity planning maps:

> In essence, prior to the CMA the government department of the day assisted Wagga City Council to develop a land and water management plan, and all those sensitive areas have been mapped. The areas that could become saline in the next 10 or 15 years have been highlighted and so forth. Our best available knowledge has been mapped and we can start to plan where urbanisation should go.[42]

6.47 However, not all councils felt that they had access to adequate mapping at an appropriate scale and therefore raised concerns that urban sub-division was occurring on land which had the potential to become saline:

> We called for further research, particularly mapping at an appropriate scale, and talked about the ramification of actions that had been taken, such as the effect on land value, anger in the community at the lack of detailed

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39 Mr Neville Pavan, Catchment Coordinator, Implementation, Hawkesbury-Nepean Catchment Management Authority, *Committee Hansard*, 14 October 2005, p. 65.

40 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 16.

41 Hawkesbury-Nepean Catchment Management Authority, *Submission 12*, p. 1.

42 Mr Gregory Bugden, Murrumbidgee Catchment Management Authority, *Committee Hansard*, 10 February 2006, p. 22.

> information and the further deterioration in surface water quality as subdivision proceeds and inappropriate water management techniques are used in new developments.[43]

6.48 As discussed in Chapter 5, salinity risk and hazard mapping is a valuable tool and if used in the urban context has the potential to avoid significant problems. However, mapping must be undertaken to ensure that state and local governments have access to information to make the appropriate development decisions.

### *Building in a salinity affected environment*

6.49 The Wagga Wagga City Council has been actively engaged in the management of urban salinity since 1993. During this period the Council has produced a number of publications to assist the community in understanding and managing urban salinity. Mr Short told the Committee that the council had produced, as part of the Local Government Salinity Initiative, a document called *Building in a Saline Environment*. The publication told 'people that they should use heavier duty damp courses, better quality bricks and better ways of damp coursing to protect the house in the long term'.[44]

6.50 Also in Wagga Wagga, the Committee heard from Mr Green who suggested that incentives could be offered to home builders to protect houses against salinity at the building stage:

> We could counter that with an incentive to address salinity—a bit like the First Home Owners Scheme where they got a $1,000, $7,000 or whatever. To put in a damp-proof course to protect a house against salinity, I think, costs about $4,000 for a proper system. Whatever the figure is there could be some sort of incentive to assist with that. There are things that everyone basically has to do like termite control, so why not include salinity control and give some sort of incentive for people to address the issue that way.[45]

### *Revegetation programs*

6.51 Evidence was received which suggests that urban developers should be more actively engaged with local government and contribute to the funding of revegetation of saline affected land.[46] Mr Bugden from the Murrumbidgee CMA argued that a land classification system could be developed that would match the salinity risk with an appropriately weighted revegetation responses:

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43 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 15.

44 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 46.

45 Mr Robert Green, *Committee Hansard*, 10 February 2006, pp 15-16.

46 Mr Gregory Bugden, Murrumbidgee Catchment Management Authority, *Committee Hansard*, 10 February 2006, p. 21.

> Then the responsibility is on the developer to pay for some of that land use change, or the incumbent is going to take over that land. The vision is that certain land classes will require 100 per cent vegetation, some 20 per cent and some 30 per cent. Some of those saline scalds need to be fenced out and so forth. That gives the council the platform to move forward.[47]

6.52 The Committee heard that the Wagga Wagga City Council has actually created a development control plan for vegetation in rural residential areas, which sets out what percentage of the block should be vegetated and what sorts of species should be used.[48] However, concerns were raised that the control plan was not being adhered to:

> There is a DCP—a development control program—which actually nominates how much vegetation such as shrubs and trees and whatever is in these areas. It addresses things like the size of lawns, which is the landscaping side of it. But just as a general comment—and I am commenting because it is a bit of a community view or a component of the community view—it is not being done adequately. As to some of lawns out in Tatton, for instance, a comment was made to me the other day, 'Why are they still putting in these large lawns or why is council allowing it?' It might not be the council; it might be developers.[49]

6.53 Dr Petrina Quinn noted that while there are planning requirements in Wagga Wagga, which developers are required to comply with, monitoring this can be time-consuming and expensive.[50]

6.54 In the urban environment, the Wagga Wagga City Council has undertaken a range of strategies such as revegetating parkland and nature strips, and involving the local community to reconsider approaches to gardens:

> In terms of revegetation, we revegetated all the areas that were easy to revegetate: parkland that had not been developed, nature strips. We tried to involve the community… In one area we thought we would try and change landscaping patterns in houses. We got a landscape architect in to meet with the community and talk about different treatments that could be used on nature strips and gardens… This is typically what we came up with: mulching, low water use plants and paving.[51]

6.55 The Committee commends the approach taken by the Wagga Wagga City Council to revegetate the urban environment. However, the Committee notes with concern witness comments about the resource burden of monitoring developers'

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47 Mr Gregory Bugden, Murrumbidgee Catchment Management Authority, *Committee Hansard*, 10 February 2006, p. 21.

48 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 42.

49 Mr Robert Green, *Committee Hansard*, 10 February 2006, p. 13.

50 Dr Petrina Quinn, *Committee Hansard*, 10 February 2006, p. 13.

51 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 41.

compliance with planning requirements and concerns that compliance is being breached.

### *Engineering programs*

6.56 As discussed in the next chapter, there is a need to balance both long-term solutions of salinity mitigation, such as revegetation, with necessary quick-result-producing programs, such as engineering solutions. In Wagga Wagga, 70 per cent of the Council's expenditure on salinity programs has been spent on engineering solutions, with about 45 per cent spent on rear of block drainage programs and about 25 per cent on pumping programs.

6.57 The Committee acknowledges that while engineering solutions are very expensive, in some circumstances the cost is justifiable. In Wagga Wagga the watertable had been rising in some areas at a rate of approximately 0.2 to 0.5 of a metre per annum. The Council felt that the potential impact on real estate values in the town warranted action that would deliver immediate results. As Mr Bryan Short from the City Council told the Committee:

> The engineering solutions are expensive but they are a quick fix, and that is how we were able to allay people's fear. By putting in that bore field, we were able to get the water table down quickly. That was the only way we were able to avoid blood in the streets. We knew there was a problem there. If we did not have any programs up our sleeves, the real estate values in that area would have plummeted and people would have been locked in there and would not be have been able to sell or get out. You have to be careful when you identify the problem to go with the solution as well, and it has to be a solution that works in a reasonable time frame.[52]

### *Training programs and information for all stakeholders*

6.58 Witnesses argued that there is a need to ensure that all stakeholders involved in urban development and management have a sound understanding of urban salinity and are provided with appropriate information to enable them to address this issue in an effective way. The Committee was told that communication between land managers with a knowledge of urban salinity and engineers, builders and planners was limited:

> We have natural resource managers, but we have to talk to engineers, builders and planners, who do not traditionally talk to each other. For example, when a ground water person talks about a well-sorted aggregate, they mean it is all one size, whereas to an engineer that is poorly sorted—well sorted means they have a lot of each of the different sizes, because that is how they compact their roads. They have not naturally spoken to each

52 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 48.

> other in the past and they do not always speak the same language. That lack of information flow makes it hard to assess the impacts.[53]

6.59 It is clear that in some states initiatives are underway to address this issue. Mr Dan Meldrum from the River Murray Catchment Water Management Board told the Committee that in SA collaboration between planners, engineers and local governments was happening:

> We have trained planners and environmental engineers working closely with local government associations, so I think we have a reasonable level of understanding.[54]

6.60 The Committee heard that a number of local governments have employed salinity officers to raise the level of awareness about the issues and to provide technical support and information.[55] Mr Neville Pavan from the Hawkesbury-Nepean Catchment Management Authority told the Committee about the local government salinity program, which provides both training and information across the state of NSW:

> The local government salinity program—which is now being carried out by the Department of Natural Resources through the salinity team leader—has been state-wide and has produced and provided a lot of information for people to get a hold of. We did a short training session with some of our officers, and that type of awareness—the pictures and the explanations—is around and it is very good.[56]

6.61 In NSW, the Department of Natural Resources supported the development of the Local Government Salinity Initiative, which provides training, education and technical support to councils to manage urban salinity. Eleven booklets have been produced in the LGSI series, which bring together a range of information on urban salinity management. The project was undertaken in response to a high level of frustration felt at a local government level about the lack of support available to tackle urban salinity. The Department followed these publications with training sessions, often instigated at the request of local councils:

> A lot of them have been involved in training; 25 per cent of councils in New South Wales have sent staff to training. That might be one staff member from a small council but some of the Western Sydney ones have sent about 40 staff members… So all staff within councils—not just the engineers but the builders, the planners and the people from parks and

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53 Ms Sian McGhie, Urban Salinity, NSW Department of Natural Resources, *Committee Hansard*, 14 October 2005, p. 10.

54 Mr Daniel Meldrum, Senior Project Officer, Salinity and Water Use, River Murray Catchment Water Management Board, *Committee Hansard*, 16 November 2005, p. 48.

55 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 19.

56 Mr Neville Pavan, Catchment Coordinator, Implementation, Hawkesbury-Nepean Catchment Management Authority, *Committee Hansard*, 14 October 2005, p. 65.

> gardens—are working together to build up a knowledge of what the impacts and processes are within their town and to come up with a list of things that they can do to implement change that suit that level of risk and their resources. It has been very successful.[57]

6.62 The Committee also heard from WSROC that in 1999, in association with the department, WSROC hosted a Western Sydney Salinity Working Party, which brought together the Hawkesbury-Nepean Catchment Management Trust and the Upper Parramatta Catchment Trust, three other councils in Western Sydney, the Housing Industry Association, the Department of Urban Affairs and Planning, the LGSA and the Office of Western Sydney, to discuss the issue of urban salinity and develop a range of planning and management responses to the problem. Since March 2000, this group has been involved in the Western Sydney Salinity Management Project, funded by the Natural Heritage Trust.[58] Councillor George Campbell from WSROC told the Committee:

> First of all I must admit to being on a bit of a steep learning curve on this issue… WSROC has been very heavily involved in training member councillors in the issue, providing information and so on. Our main concern I guess is that, when we think of salinity, we often think of salinity in the countryside and how it affects farming and so on. We are very concerned that it is a major problem in the Western Sydney area—or a potential problem. We want to ensure that urban salinity is taken very seriously.[59]

*Educating the community*

6.63 The Committee heard of the need to educate the community about urban salinity:

> We need a positive approach. Certainly in Wagga we have taken that. Some of the council people refer to some of the things that we have done and some of which you might have seen: water-wise gardens and our urban salinity tour, which we will go on this afternoon. Another one is the salinity glove box guide, done by the DPI and the community. These things are starting to put in front of people things that they can understand in a common language. Whilst I agree that we need professional people, we also need to be able to get that simple message across to people.[60]

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57 Ms Sian McGhie, Urban Salinity, NSW Department of Natural Resources, *Committee Hansard*, 14 October 2005, p. 4.

58 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 14.

59 Councillor George Campbell, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 13.

60 Mr Robert Green, *Committee Hansard*, 10 February 2006, p. 5.

6.64 The Wagga Wagga City Council has produced an excellent range of publications, from booklets to PowerPoint presentations burnt on CD, informing Wagga Wagga residents about the impact and management of urban salinity.

6.65 While in Wagga Wagga, the Committee visited ErinEarth run by Sister Carmel Wallis. The home and garden was conceived in 1997 and sits in stark contrast to the original 1870 convent building with its extensive lawns and European style gardens.

Photograph: ErinEarth sustainable garden, Wagga Wagga, NSW

6.66 Sister Wallis told the Committee about ErinEarth:

> It is a site on 0.4 hectares. It has a solar passive house where I live with another sister and we very often have visitors staying with us. It has water-wise house gardens that try to break the concept of lawn, iceberg roses and annuals. It offers alternatives to most thirsty gardens. We have vegetable gardens and a small orchard in process, and compost systems and chooks

> that are suitable for Wagga backyards. We now have a dam and wetland ponds on that tiny site, and they are filled by the stormwater from the old convent buildings. This was a salinity alleviation project that has had great biodiversity consequences. We are amazed watching it unfold before our eyes.[61]

6.67 A key objective of ErinEarth is to educate and involve the community and to provide an alternate perspective to urban living and gardens:

> I was thinking about the beauty of the site in terms of salinity education. The beauty is that there is the possibility of a practical, clear object lesson for past and present stories. From a single vantage point on the site, people can see the buildings from the 1870s with the downpipes and overland gutters into the railway, and that has its story. They can see the two hospitals, behind which the saline discharge was eating away foundations. There is the other story. They now have a dam and wetland ponds which collect the water. It has biodiversity spin-offs. We are able to educate the connection between salinity and biodiversity, which is pretty crucial. We are able to demonstrate the plants that are suitable for a recharge zone by looking at them. Standing in the one spot, you see the lot.[62]

6.68 Sister Carmel also raised the social justice implications of salinity in towns where the more affluent homes are located on the top of hills yet the runoff from large gardens and the consequent rise in the watertable manifests itself in the lower lying and often lower socio-economic parts of the town:

> I think the other reason it is useful as an education site is that, as Sisters, we have had a background in education and social justice. Much of the salinity issue on both the micro and macro themes is a social justice issue—or it certainly has social justice implications. Here in Wagga, in the recharge zones, we have the larger homes with the more affluent gardens doing a lot of watering, and the implications are felt in the lower socioeconomic areas of Wagga.[63]

*Impact on real estate values and the role of education*

6.69 The Committee heard evidence about the impact of urban salinity on real estate values and the importance of information and community education to address what potentially could be a damaging community issue.

6.70 In Wagga Wagga the Committee was told that once the effects of salinity had been identified by the Council, it was decided that a community consultation and education program was needed:

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61 Sister Carmel Wallis, ErinEarth, *Committee Hansard*, 10 February 2006, p. 6.

62 Sister Carmel Wallis, ErinEarth, *Committee Hansard*, 10 February 2006, p. 7.

63 Sister Carmel Wallis, ErinEarth, *Committee Hansard*, 10 February 2006, p. 7.

> We felt that if we had this information we needed to make it public, because if we sat on it we would be liable for court cases if people subsequently found out that we had the information and had not told them and they had damage caused to their houses and property… At the same time that we let this information lose out to the public, we also went out with a strong community consultation process. We told people that we had four programs that we were going to put in place, which we were hopeful could manage the rising water tables under the urban area.[64]

6.71 Mr Short went on to explain that real estate in salinity affected areas:

> …nosedived initially, to the point where you could not sell houses in those areas. After we got into the education program the houses started to sell again, but they dropped by the amount it would take people to do repairs. A lot of the time people were hiding them. They would put a fresh coat of paint on something. What tended to happen was that the house valuation would drop by $15,000 to accommodate the repairs that might have to be done to it, on the expectation that the programs that council put in place would not let it happen again.[65]

6.72 The Committee was told that banking institutions were also involved in a process of re-education as some would not lend for the purchase of houses in salinity affected areas:

> …some of the banks and lending organisations started to say they would not lend money for houses in those areas. We had to go through an extensive education process with them to convince them that the package that we were putting together would mitigate the effects that the rising watertable was having. It took about 18 months before we could get them to change their mind and start lending in those areas again.[66]

6.73 The experience of home owners in Wagga Wagga highlights the importance of re-education programs in salinity-affected residential areas. Further, it underscores the need for better planning and management of housing developments on potentially saline land.

### *Rural Towns Program – WA*

6.74 The Committee heard that a program to manage urban or townsite salinity has been underway in WA for a number of years.[67] The Rural Towns Program was established in 1997 and is administered by the WA Department of Agriculture. The program is supported by a 12-member management committee comprised of six

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64 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 40.

65 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 46.

66 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 41.

67 Mr Fred Tromp, Director, NRM and Salinity, Department of Environment, *Committee Hansard*, 18 November 2005, p. 3.

government representatives and six local government/rural sector representatives. The purpose of the program is to assist communities in managing townsite salinity. A total of 38 towns and communities are involved in the project.[68]

*Rural Towns – Liquid Assets*

6.75 The Rural Towns – Liquid Assets project is being run over three years. It is a partnership between the Department of Agriculture, Local Government, CSIRO, and regional catchment councils. The project aims to demonstrate how to control townsite salinity and produce returns from saline groundwater production.

6.76 The objectives of the project are:

- Protect townsite infrastructure from salinity
- Protect remaining biodiversity areas in or adjacent to towns
- Produce a model for integrated town water management
- Develop alternative new supplies plus recycled water schemes
- Reduce reliance on scheme water in towns
- Foster high value industries using new water supplies
- Promote local ownership of water resource management issues[69]

6.77 The total cost of the project is $6 million. The Department of Agriculture has committed $1.5 million in cash and $500,000 in in-kind contributions. A total of 1.5 million through regional catchment councils' NAP funds will be sought. A total of 1.5 million will be sought from local governments. Other partners will make in-kind contributions.[70]

## Greater support for urban salinity

6.78 Evidence to this inquiry suggests that, in the main, the current level of support to address urban salinity is limited. The key areas of concern are:

- lack of information and guidance
- local governments are under resourced to do the massive task that has fallen to them
- there is a lack of emphasis on urban salinity in the current national programs

6.79 Mrs Sharon Fingland told the Committee that WSROC had identified a range of issues contributing to the failure to adequately deal with the challenges of urban

68 WA Department of Agriculture website, www.agric.wa.gov.au/pls/ (accessed 14 November 2005).

69 Taken directly from the Department of Agriculture, *Rural Towns – Liquid Assets*, p. 1.

70 Department of Agriculture, *Rural Towns – Liquid Assets*, p. 2.

salinity. These included a lack of information, guidance, state and federal government leadership and local government resources:

> A whole lot of issues were identified including issues of liability, process and information dissemination, a lack of guidance to councils on how to alert residents to the problem and potential damage, a lack of information mapped at an appropriate scale, a lack of council resources to deal with the growing community concerns as residents became aware of the impacts of salinity, the need for clear and consistent council action based on guidelines covering things like planning instruments, the need to build methods into the Building Code of Australia to talk about salinity issues, the need for greater federal government leadership to coordinate actions across all levels of government and the need for stronger state government commitment to addressing salinity concerns, particularly for large scale urban releases in Western Sydney.[71]

### *Supporting local councils*

6.80 Because of their primary role in urban planning and development, their ownership of civic infrastructure and their management of wastewater, local government are central to urban salinity management. The Australian Local Government Association submitted that:

> Councils have influence over salinity management through local planning and land use controls, conservation of biodiversity and the management of the water cycle. Councils are also directly impacted upon by salinity, particularly by urban salinity. Urban salinity has significant costs for both councils and their communities, in terms of salt affected infrastructure such as roads, housing and drainage …[72]

6.81 A number of submitters also highlighted the role played by local government beyond salinity management to broader issues of natural resource management. Mr Charles Willcocks, from the Department of Agriculture, Fisheries and Forestry told the Committee:

> It is also important to point out that local government intersects with natural resource management in a number of areas—think about weeds and feral animal management, management of public land, roads and so on—so it is not just a salinity issue. Local governments engage pretty heavily on natural resources across a range of issues.[73]

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71 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 15.

72 Australian Local Government Association, *Submission 13*, p. 1.

73 Mr Charles Willcocks, Landcare and Sustainable Industries, Natural Resource Management Division, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, 6 September 2005, p. 17.

6.82 Mrs Sharon Fingland from WSROC also argued that urban salinity needs to be considered in the broader context of water management:

> We argued that urban salinity needed to be considered within the broader context of integrated water management—in other words, how salinity affects stormwater management, water sensitive urban design and community behavioural norms… We argued that salinity is an issue of prime national importance for Australia. It is particularly an issue for urban areas of Western Sydney, which has significant implications for asset management, risk liability and costs to our community.[74]

6.83 Despite the complexity of the management issues around urban salinity and natural resource management more broadly, witnesses felt that councils were under-resourced and were increasingly asked to do more with less. Dr Petrina Quinn from the Central Riverina Landcare Network and Murrumbidgee Landcare Association, told the Committee:

> When it comes to urban salinity west of the divide, the main game is local government. Any main policy pressures applied to local government have to be ones that have to be managed without huge amounts of resources. More and more is being dumped on local government and, frankly, it is unfair and unreasonable. They do a huge amount and account must be taken of the much broader portfolio in NRM that local government are now required to engage with.[75]

6.84 The Committee was told that councils themselves feel that the Australian Government has, over the past decade, become less involved in urban issues more generally:

> We would go further inasmuch that, for about the last 10 to 15 years, we would argue there has been less involvement at the federal government level in terms of a whole host issues to do with urban areas. A lot of projects that were actually initiated under the Building Better Cities program, for example, very helpful to areas like Western Sydney but there has been little engagement in those sorts of issues over the last decade.[76]

6.85 The Local Government Salinity Initiative is a positive example of program support made available to local government. Mr Andrew Campbell from Land & Water Australia also highlighted an NDSP project which aimed to provide local government with examples of 'best practice' council programs aimed at addressing urban salinity:

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74 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 16.

75 Dr Petrina Quinn, Central Riverina Landcare Network and Murrumbidgee Landcare Association*, Committee Hansard*, 10 February 2006, p. 16.

76 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 22.

> There was an NDSP project that highlighted best practice in local government and provided examples of what the more progressive councils are doing around salinity. It is very heartening, but they are little candles in the darkness in comparison to the scale of the issue.[77]

6.86 However, 'little candles in the darkness' are unlikely to provide the necessary support needed by local government.

### *Funding solutions*

6.87 Local government argued that lack of financial support was a significant barrier to addressing urban salinity.[78] This was affirmed by other witnesses:

> They are at the low socioeconomic end of the funding set-up, and they are always looking for money.[79]

6.88 Mr Bryan Short from Wagga Wagga City Council highlighted the difficulty local government has in raising funds for urban salinity management:

> We find that we have some difficulty convincing our partners in the rural areas that urban salinity is a legitimate player in the action plan. Their view is that local government should go out and fund that itself. But local government is struggling for funds, or it is in New South Wales anyway, with rate pegging.[80]

6.89 Dr Petrina Quinn told the Committee that the difficulty in accessing federal funding was a significant impediment to local government involvement:

> It has been a huge problem. Historically, in 1996-97, a couple of years after it became general knowledge in the community that we had a high saline water table, it was exceedingly difficult to access funds from national programs.[81]

6.90 The Committee heard that, pre-access to NHT funding, the Wagga Wagga City Council was fortunately able to sell off an asset to finance the development of an urban salinity implementation program.[82] However, Dr Quinn from the Central Riverina Landcare Network and Murrumbidgee Landcare Association argued:

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77 Mr Andrew Campbell, Land & Water Australia, *Committee Hansard*, 6 September 2005, p. 27.

78 Australian Local Government Association, *Submission 13*.

79 Mr Robert Green, *Committee Hansard*, 10 February 2006, p. 10.

80 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 43.

81 Dr Petrina Quinn, Central Riverina Landcare Network and Murrumbidgee Landcare Association, Central Riverina Landcare Network and Murrumbidgee Landcare Association, *Committee Hansard*, 10 February 2006, p. 9.

82 Dr Petrina Quinn, Central Riverina Landcare Network and Murrumbidgee Landcare Association, *Committee Hansard*, 10 February 2006, p. 9.

> [M]ost regional towns are not in that position, and they need access to federal funds to at least begin the substantial work that then becomes a lever for a range of other sound environmental practices to follow.[83]

6.91 Additionally, the Local Government Association of Queensland submitted that the current focus of NRM through both NAP and NHT was very narrow and did not give adequate consideration to the role played by local government in the management of services that impact on the natural environment. It was suggested a broader focus for these national programs would be more useful.[84]

6.92 In Wagga Wagga the Committee heard that NAP funding is directed to on-ground projects and that this restricts local governments from developing education programs, which are equally valuable to their communities:

> Also, when programs or projects were being called for under the national action plan, the council put forward a proposal for a one-stop shop for managing urban salinity for Wagga. We were seeking funding out of the Australia-wide part of the program rather than the state program. But that did not get up…
>
> The current program with the national action plan in New South Wales is concentrated more on works on ground. We would like to see a bit of a better balance between works on ground and education programs. At the moment, while we are getting funding under the national action plan, we are letting that fund the works on ground and we are using our own money to fund the education side of the issue.[85]

6.93 Mrs Sharon Fingland from WSROC told the Committee that, whilst national funding for urban salinity is limited, WSROC has been able to access NHT funding:

> Particularly in Western Sydney, the issues that were identified were a lack of acknowledgment at the federal level of urban salinity issues for the region—we were not getting any financial support—a lack of public awareness on the impact on residents and urban infrastructure and a lack of financial support to repair damage to economically disadvantaged areas. As a result we got the natural heritage funding, which certainly has assisted. We are very grateful for that.[86]

6.94 Similarly the Wagga Wagga City Council were, more recently, also able to access funding from the NHT:

> In terms of funding, initially we drew on the NHT program and, to some extent, the smaller projects of the environmental trust. The funding ratio

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83 Dr Petrina Quinn, Central Riverina Landcare Network and Murrumbidgee Landcare Association*, Committee Hansard*, 10 February 2006, p. 9.

84 Local Government Association of Queensland, *Submission 8*, p. 1.

85 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 43.

86 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 15.

> was about $3 of council money to about $1 grant money from state and federal government plus about $1 in-kind contribution from the state government agencies and CSIRO. Because we were the first cab off the rank, we got a lot of support—and we still do get support, but probably not as much as we think we should—from the agencies. There was a drying up of funds for about three years while the NAP—the national action plan—funding was sorted out.[87]

### *Urban salinity – recognition in national programs*

6.95 Evidence to this inquiry indicates that the priority given to urban salinity by national programs is inadequate and that there is currently an overemphasis on agricultural salinity:

> Each time we have tried to highlight the fact that one in 11 of the Australian population live in our region and yet, when regional issues are considered, it appears that urban regions do not get the same level of attention that rural regions get for some of the issues. Issues such as salinity and urban salinity, for our region, are something that have to be thought of at a regional and national level.[88]

6.96 In September 2005, Mr Mike Lee from the Department of Agriculture, Fisheries and Forestry, noted the imbalance in investment in civic infrastructure and told the Committee that urban salinity was not sufficiently accommodated in regional investment plans:

> I would like to suggest as a personal observation that it would be good to consider the balance of investment and attention being paid to civic infrastructure—roads, rail, foundations, sewage treatment and what have you—in relation to salinity hazard. That was certainly one of the specific references in the national action plan. But we have found with experience that that area is not appearing in the investment proposals or strategies as strongly as it might in terms of what is coming forward, and yet we know that impacts on infrastructure in terms of the economic effect of salinity are very large. So this is one area that we will certainly be looking at in our salinity evaluation, which I referred to previously, of the balance of the investment portfolio that we have in salinity. Our suspicion is that it is potentially weak in the area of protecting civic infrastructure. That is an area which local government has a very strong interest in, as do other state agencies that are involved in road, rail and what have you. It spreads the net further than the more traditional aspects of salinity impacts that we have looked at.[89]

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87 Mr Bryan Short, Wagga Wagga City Council, *Committee Hansard*, 10 February 2006, p. 42.

88 Mrs Sharon Fingland, Western Sydney Regional Organisation of Councils, *Committee Hansard*, 14 October 2005, p. 19.

89 Mr Mike Lee, Australian Government Natural Resource Management Team, Natural Resource Management Division, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, 6 September 2005, p. 17.

6.97 In February 2006, Mr Aldred from the Department of Agriculture, Fisheries and Forestry told the Committee that the heightened focus on agricultural salinity (and the lack of attention on urban salinity) may be due to the fact that the two departments responsible for administering the NRM programs at a national level have a rural and agricultural focus:

> I would say at the outset that, largely, the two portfolios represented here do have a particular focus on rural and agricultural lands, and in some senses that was the genesis of the National Action Plan for Salinity and Water Quality. There are certainly significant issues in relation to built environments and major infrastructure, but they are not the primary emphasis of the programs that these portfolios deal with.[90]

6.98 Ensuring the 'viability of infrastructure' is one of the goals of the NAP. As a result, the Committee believes it is the responsibility of the Australian Government to ensure that the administering departments build links with relevant Commonwealth and state agencies so that they are sufficiently informed of, and able to provide leadership on, urban salinity issues at a national level.

## Conclusion

> Urban salinity is five or 10 years behind dryland salinity—as dryland was five or 10 years behind irrigation salinity.[91]

6.99 The Committee heard that urban salinity is shaping to be a significant issue in the future. Of concern to the Committee is not simply the potential size of this problem but that local, state and federal governments are generally ill prepared to deal with it.

6.100 The Committee was heartened that the state government in WA and local governments, such as Wagga Wagga City Council, the Western Sydney Regional Organisation of Councils and a number of CMAs are currently dealing with the issue of urban salinity through a range of programs. However, funding and appropriate recognition in national programs for urban salinity is both limited and fragmented:

> Too often urban salinity along with everything else in NRM is a bit fragmented. This is problematic. There is fragmentation of NRM across all levels of government. In terms of urban salinity, I suggest that systemic approaches are better.[92]

6.101 The Committee believed there is a need for greater emphasis to be given to urban salinity – a potential sleeping giant.

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90 Mr Tom Aldred, Executive Manager, NRM, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, 28 February 2006, pp 37-38.

91 Ms Sian McGhie, Urban Salinity, NSW Department of Natural Resources, *Committee Hansard*, 14 October 2005, p. 10.

92 Dr Petrina Quinn, Central Riverina Landcare Network and Murrumbidgee Landcare Association, *Committee Hansard*, 10 February 2006, p. 16.