

6.11 Total Cost of Plan

The estimated cost of the Government input to the plan is given in Table 71, Table 72, Table 73, Table 74 and Table 75 for the programs to address irrigation salinity, dryland salinity and ocean induced salinity, surface water salinity and community education respectively. A total aggregated Government cost of all five programs is provided in Table 76. The tables show the approximate costs of the activities that are currently funded outside the plan and those that are recommended to be funded by the plan. The costs are calculated as a present value and assume that a Full Time Equivalent position for the Department of Primary Industries and the West Gippsland Catchment Management Authority averages \$115,000 per year as advised by the respective agencies.

The costs shown below are indicative only and should be reviewed in the context of new information and policies.

■ **Table 71: Approximate present value Government cost of the program to address irrigation salinity**

Management options	Potential future actions	Indicative yearly government expenditure outside salinity management plan						Yearly government expenditure by salinity management plan					
		2004/ 2005^	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2004/ 2005^	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
IA. Recharge control – Irrigation management													
IA1 Irrigation Farm Planning	IA1 Irrigation Farm Planning	\$383,000	\$383,000	\$383,000	\$383,000	\$383,000	\$383,000						
IA2 Conversion from flood to spray irrigation	IA2.1 Provide incentives to irrigation farmers for the conversion of flood to spray irrigation	\$383,000	\$383,000	\$383,000	\$383,000	\$383,000	\$383,000						
	IA2.2 Manage financial incentives program for the development of Irrigation Farm Plans and the conversion of flood to spray irrigation	\$143,750	\$143,750	\$143,750	\$143,750	\$143,750	\$143,750						
	IA2.3 Determine the current extent of spray and flood irrigation across the MID and the key target areas for future extension programs	\$50,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000						
	IA2.4 Irrigation Extension							\$80,500	\$80,500	\$80,500	\$80,500	\$80,500	\$80,500
IA3. More efficient flood irrigation	IA3.1 Investigation into flood irrigation techniques including documentation of IBIS trial results							\$11,500	\$11,500	\$11,500	\$11,500	\$11,500	\$11,500
	IA3.2 Extension of best practice flood irrigation techniques												
IA4. Efficient irrigation development on 'Greenfield sites'	IA4.1 Guidelines for new irrigation developments	\$10,000	\$20,000										
	IA4.2 Extension of best practice irrigation planning for new irrigation developments							\$11,500	\$11,500	\$11,500	\$11,500	\$11,500	\$11,500
IA5. Irrigation Management to prevent salt build up from salt applied from above	IA5.1 Calibrate current "safe salinity" model to local conditions using field based examples							\$45,000					
	IA5.2 Publicise results of "safe salinity" model and extension to individual farmers							\$11,500	\$11,500	\$11,500	\$11,500	\$11,500	\$11,500
IB. Recharge control – Agronomic options													
IB1. Perennial pasture and tree establishment	IB1 Tree planting and perennial pasture establishment												
IB2. Maintaining and managing existing native vegetation	IB2 Provide input into existing programs protecting remnant vegetation							\$28,750	\$28,750	\$28,750	\$28,750	\$28,750	\$28,750

Management options	Potential future actions	Indicative yearly government expenditure outside salinity management plan						Yearly government expenditure by salinity management plan					
		2004/ 2005^	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2004/ 2005^	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
IC. Engineering options – Sub-surface drainage													
IC1 Public Groundwater Control Pumps	IC1.1 Operation of existing Groundwater Control Pumps							\$22,000	\$24,000	\$26,000	\$27,000	\$28,000	\$29,000
	IC1.2 Continue investigating or implementing any unfinished groundwater pumps							\$255,000	\$195,000	\$275,000			
	IC1.3 New pump investigation and installation								\$90,000	\$90,000	\$200,000	\$200,000	\$110,000
	IC1.4 Alternative energy sources for pumps							\$15,000					
	IC1.5 Review disposal of all groundwater pumps							\$30,000					
	IC1.6 Effect of pumps on soil salinity							\$4,000		\$4,000		\$4,000	
IC2 Private Groundwater Pumps in high watertable areas	IC2.1 Existing irrigation bores for salinity control								See IC2.4	See IC2.4	See IC2.4	See IC2.4	See IC2.4
	IC2.2 Input into Groundwater Management Plans							\$2,000					
	IC2.3 Investigate methods for encouraging shallow groundwater use in preference to channel or river water								\$10,000				
	IC2.4 Targeted Exploration Drilling Scheme (TEDS) and Capital Grants Scheme								\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
	IC2.5 Review previous successful FEDS/TEDS investigations								\$3,000				
IC3 Free flowing bores discharging to rivers/drains	IC3 Review current state and effectiveness of free flowing bores and recommend appropriate action									\$5,000			
IC4 Tile and mole drains	IC4 Review operation of tile drains in Clydebank School plus general economic analysis									\$5,000			
ID. Engineering options – Surface drainage													
ID1.Improved surface drainage	ID1: Review of surface drainage in the MID									\$10,000			
ID2.	ID2: Research into viability of community drains complete and incentives/extension program commenced									\$20,000	\$10,000	\$10,000	\$10,000

Management options	Potential future actions	Indicative yearly government expenditure outside salinity management plan						Yearly government expenditure by salinity management plan					
		2004/2005 [^]	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2004/2005 [^]	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010
IE. Living with Salt													
IE1. Returning land with a reduced watertable into production	IE1. Extension advice to farmers around groundwater pumps								\$11,500	\$11,500	\$11,500	\$11,500	\$11,500
IE2. Salt tolerant crops and pastures	IE2.1 Investigation into salt tolerant crops and pastures							\$20,000					
	IE2.2 Extension services for salt tolerant crops and pastures				\$46,000	\$46,000	\$46,000		\$46,000	\$46,000	\$46,000	\$46,000	\$46,000
IE3. Productive uses of saline land and water	IE3. Review productive uses of saline land and water and implement recommendations			\$20,000						\$20,000			
IF. Monitoring, evaluation and reporting													
IF1: Watertable depth monitoring	IF1.1 Conduct monthly monitoring of observation bores in the MID & surrounds and Sale township							\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000
	IF1.2 Create watertable depth maps for irrigated SMAs, analysis and reporting							\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
	IF1.3 Create watertable depth map for Sale, analysis and reporting							\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
IF2: Soil salinity monitoring	IF2.1 Monitor soil salinity around pumps							\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
	IF2.2 5 yearly reports on soil salinity	\$10,000		\$10,000		\$10,000							\$20,000
IF3: Multi-benefits for vegetation establishment	IF3 Ensure vegetation establishment needs are compared with areas for salinity action								\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
IG. Coordination and management of program													
	IG1 Coordinate and manage the salinity program							\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
TOTAL STATE AND FEDERAL GOVT CONTRIBUTION		\$979,750	\$934,750	\$944,750	\$960,750	\$970,750	\$960,750	\$605,750	\$645,250	\$776,250	\$557,250	\$561,250	\$507,250
TOTAL LOCAL GOVT CONTRIBUTION		\$0	\$0	\$0	\$0	\$0	\$0	\$23,000	\$25,000	\$27,000	\$28,000	\$29,000	\$30,000
GRAND TOTAL		\$979,750	\$934,750	\$944,750	\$960,750	\$970,750	\$960,750	\$628,750	\$670,250	\$803,250	\$585,250	\$590,250	\$537,250

[^] 2004/2005 funding has already been allocated and most planned investigations and works are currently underway.

■ **Table 72: Approximate present value Government cost of the program to address dryland salinity**

Management options	Potential future actions	Yearly government expenditure outside salinity management plan						Yearly government expenditure by salinity management plan					
		2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
DA. Salinity Mapping													
DA1: Agricultural land salinity mapping	Land salinity mapping								\$20,000				
DA2: Salinity mapping in urban areas	Salinity mapping and investigations in urban areas							\$15,000					
DA3: GFS investigation	Groundwater flow systems study							\$50,000					
DA4: Impact of management actions	Quantify expected effects of the various management actions recommended in the GFS study (DA3). Modify management actions.								\$70,000				
DA5: Land capability and economic assessment	Assess capability of land for management actions recommended in DA3 and DA4. Assess economics of implementation. Modify management actions.									\$40,000			
DA6: Capacity building and methods for adoption	Methods for building community capacity to implement change Develop innovative methods for program delivery. Modify management actions.			\$25,000						\$25,000			
DA7: Integrated actions	Develop set of on-ground actions for each salinised area				\$25,000	\$25,000					\$25,000	\$25,000	
DB. Whole Farm Planning													
DB: Whole Farm Planning	DB1 Guidelines for the development and assessment of Whole Farm Plans								\$10,000				
	DB2 Central database of information to be used for the development of Whole Farm Plans								\$3,000				
	DB3 Whole Farm Planning courses for both farmers and extension officers							\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
	DB4 A review of the relevance and implementation of whole farm planning extension programs								20000				

Management options	Potential future actions	Yearly government expenditure outside salinity management plan						Yearly government expenditure by salinity management plan						
		2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	
DC. Recharge control – Agronomic options														
DC1: Perennial pasture mapping	DC1 Determine extent of perennial pastures in key recharge areas											\$20,000*		
DC2: Perennial pastures	DC2 1) Effectiveness of perennials to reduce recharge and salinity. 2) Extension to encourage perennial pastures									\$20,000	\$10,000	\$10,000	\$10,000	\$10,000
DD. Recharge control – Trees and native vegetation options														
DD1: Tree planting on recharge areas – commercial forestry and/or farm forestry	DD1: 1) Investigation into economics of trees 2) Extension to encourage farm and commercial forestry		\$200,000	\$200,000	\$200,000	\$200,000	\$200,000			\$20,000	\$30,000	\$30,000	\$30,000	\$30,000
DD2: Tree planting – recharge control plus increased biomass and biodiversity	DD2: 1) Ensure revegetation projects take into account tree planting for salinity 2) Extension to encourage tree planting in strategic areas.	\$259,000	\$258,000	\$258,000	\$25,000	\$25,000	\$25,000				\$50,000	\$50,000	\$50,000	\$50,000
DD3: Maintaining and managing existing native vegetation	DD3: 1) Ensure "net gain" of native vegetation in any instances of clearing 2) Review the "Bush Tender" trial program									\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
DE. Groundwater pumping														
DE1: Public Groundwater Control Pumps	DE1 Investigation into pumping to protect urban salinity											\$10,000		
DE2: Private groundwater pumps	DE2: Review potential areas for private groundwater pumping												\$15,000	\$15,000
DF. Living with Salt														
DF1: Fencing and salt tolerant veg	DF1: Investigation and extension of salt tolerant crops and pastures.									\$60,000	\$60,000	\$60,000	\$60,000	\$60,000
DF2: Aquaculture	DF2: No action – benefit-risk score too low													
DF3: Salt harvesting	DF3: No action – benefit-risk score too low													
DF4: Government buy-back of saline land for rehabilitation	DF4: Investigate option of saline land buyback										\$10,000			
DF5: Evaporation basins	DF5: No action – benefit-risk score too low													

Management options	Potential future actions	Yearly government expenditure outside salinity management plan						Yearly government expenditure by salinity management plan					
		2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
DG. Monitoring, evaluation and reporting													
	DG1.1: Monitoring of groundwater bores							\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
	DG1.2: Watertable depth maps and reporting								\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
DH. Coordination													
	DH1: Coordination of dryland salinity program							\$24,150	\$24,150	\$24,150	\$24,150	\$24,150	\$24,150
TOTAL STATE AND FEDERAL GOVT CONTRIBUTION*		\$259,000	\$458,000	\$483,000	\$250,000	\$250,000	\$225,000	\$129,150	\$291,650	\$303,650	\$258,650	\$243,650	\$243,650
TOTAL LOCAL GOVT CONTRIBUTION		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,500	\$2,500	\$2,500	\$2,500	\$12,500
GRAND TOTAL		\$259,000	\$458,000	\$483,000	\$250,000	\$250,000	\$225,000	\$129,150	\$294,150	\$306,150	\$261,150	\$246,150	\$256,150

■ **Table 73: Approximate present value Government cost of the program to address ocean induced salinity**

Management options	Potential future actions	Yearly government expenditure outside salinity management plan						Yearly government expenditure by salinity management plan					
		2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
OA. Engineering options –Surface drainage													
OA1: Structures to prevent lake inflow to rivers and/or wetlands	OA1.1 Investigation into engineering structure in McLennan Straits		\$50,000*	\$20,000*						\$40,000	\$20,000	\$20,000	
	OA1.2 Feasibility study into engineering options for Clydebank Morass and Dowd Morass								\$20,000				
	OA1.3 Implementation of agreed engineering structures for McLennan Straits, Dowd Morass and Clydebank Morass										To be determined and shared amongst a number of programs		
OA2: Sea walls	OA2 Aid WGCMA implement the Rural Floodplain and Drainage Plan		\$50,000*	\$50,000*	\$50,000*	\$50,000*	\$50,000*		\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
TOTAL STATE AND FEDERAL GOVT CONTRIBUTION		\$0	\$100,000*	\$70,000*	\$50,000*	\$50,000*	\$50,000*	\$0	\$45,000	\$25,000	\$25,000	\$25,000	\$5,000
TOTAL LOCAL GOVT CONTRIBUTION		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
GRAND TOTAL		\$0	\$100,000*	\$70,000*	\$50,000*	\$50,000*	\$50,000*	\$0	\$45,000	\$25,000	\$25,000	\$25,000	\$5,000

*Estimated

■ **Table 74: Approximate present value Government cost of the program to address surface water salinity**

Management options	Potential future actions	Yearly government expenditure outside salinity management plan						Yearly government expenditure by salinity management plan					
		2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
SA. Salinity Mapping													
SA1: Map wetland salinity	SA1: Map extent and severity of wetland salinity and prioritise wetlands for further work. Establish monitoring regimes in priority wetlands, update West Gippsland wetlands management plan		\$150,000						\$20,000	\$20,000			
SA2: Map surface water salinity	SA2: Complete characterisation of surface water quality issues and prioritise key river reaches for implementation of management options									\$10,000			
SB. Environmental Flows													
SB1: Complete environmental flow assessments	SB1: Provide input into technical investigations and policy decisions on environmental flows.	\$200,000	\$400,000						\$10,000	\$10,000			
SC. Monitoring, evaluation and reporting													
SC1: Surface water monitoring	SC1.1: Continuation of current surface water monitoring	\$50,000*	\$50,000*	\$50,000*	\$50,000*	\$50,000*	\$50,000*						
	SC1.2: 2-yearly reporting on SEPP objectives in waterways with a pump discharging to it, 5-yearly reporting of other waterways							\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
SC2: Monitoring of Clydebank Morass	SC2.1: Continued spot monitoring of the Morass by Waterwatch. More intensive monitoring may be required		\$2,000*	\$2,000*	\$2,000*	\$2,000*	\$2,000*						
	SC2.2: Yearly reporting on salinity and trends in Clydebank Morass										\$2,500	\$2,500	\$2,500
SC3: Monitoring of Dowd Morass	SC3.1: Continued continuous salinity and level monitoring of Dowd Morass and nearby observation bores		\$2,000*	\$2,000*	\$2,000*	\$2,000*	\$2,000*						
	SC3.2: Yearly reporting on salinity and trends in Dowd Morass										\$2,500	\$2,500	\$2,500

Management options	Potential future actions	Yearly government expenditure outside salinity management plan						Yearly government expenditure by salinity management plan					
		2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
SC4: Monitoring of other wetlands	SC4: Monitoring of other wetlands once prioritisation is complete		\$1,000*	\$1,000*	\$1,000*	\$1,000*	\$1,000*						
TOTAL STATE AND FEDERAL GOVT CONTRIBUTION		\$250,000*	\$605,000*	\$55,000*	\$55,000*	\$55,000*	\$55,000*	\$5,000	\$35,000	\$45,000	\$10,000	\$10,000	\$10,000
TOTAL LOCAL GOVT CONTRIBUTION		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
GRAND TOTAL		\$250,000*	\$605,000*	\$55,000*	\$55,000*	\$55,000*	\$55,000*	\$5,000	\$35,000	\$45,000	\$10,000	\$10,000	\$10,000

*Estimated

■ **Table 75: Approximate present value Government cost of Community and Agency Engagement**

Management options	Potential future actions	Yearly government expenditure outside salinity management plan						Yearly government expenditure by salinity management plan					
		2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
CA1: LGA engagement plan	CA1: Develop a Local Government Authority engagement plan								\$5,000				
CA2: Community education	CA2: Integrate community education on salinity with existing programs								\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
CA3: Project communications strategies	CA3.1: Ensure all research and investigation projects, any significant strategic planning activities and significant on-ground activities have a communication strategy								Built into each project's total budget	Built into each project's total budget	Built into each project's total budget	Built into each project's total budget	Built into each project's total budget
	CA3.2: Publicise successes of the Salinity Program more widely, especially the outcomes of the Groundwater Pumping Program in and around the MID								\$4,000	\$4,000	\$4,000	\$4,000	\$4,000
CA4: SMP communications strategy	CA4: Develop a communications strategy to ensure the key messages from this plan are communicated to appropriate stakeholders and stakeholders are aware of the progress towards the plan's implementation								\$3,000				
CA5: Field days	CA5: Run field days looking at local examples of work undertaken to address salinity								\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
CA6: Educational resources	CA6: Make educational resources available for agency staff and landholders about salinity causes, processes and management.								\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
TOTAL STATE AND FEDERAL GOVT CONTRIBUTION		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$27,000	\$19,000	\$19,000	\$19,000	\$19,000
TOTAL LOCAL GOVT CONTRIBUTION		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
GRAND TOTAL		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$27,000	\$19,000	\$19,000	\$19,000	\$19,000

■ **Table 76: Summary of the total cost of the recommended salinity program**

Programs	Yearly government expenditure outside salinity management plan						Yearly government expenditure by salinity management plan					
	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
Irrigation program	\$979,750	\$934,750	\$944,750	\$960,750	\$970,750	\$960,750	\$628,750	\$670,250	\$803,250	\$585,250	\$590,250	\$537,250
Dryland program	\$259,000	\$458,000	\$483,000	\$250,000	\$250,000	\$225,000	\$129,150	\$294,150	\$306,150	\$261,150	\$246,150	\$256,150
Ocean induced program	\$0	\$100,000*	\$70,000*	\$50,000*	\$50,000*	\$50,000*	\$0	\$45,000	\$25,000	\$25,000	\$25,000	\$5,000
Surface water salinity program	\$250,000*	\$605,000*	\$55,000*	\$55,000*	\$55,000*	\$55,000*	\$5,000	\$35,000	\$45,000	\$10,000	\$10,000	\$10,000
Community and Agency Engagement	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$27,000	\$19,000	\$19,000	\$19,000	\$19,000
TOTAL STATE AND FEDERAL GOVT CONTRIBUTION*	\$1,238,750	\$2,097,750*	\$1,427,750*	\$1,210,750*	\$1,220,750*	\$1,185,750*	\$739,900	\$1,043,900	\$1,168,900	\$869,900	\$858,900	\$784,900
TOTAL LOCAL GOVT CONTRIBUTION	\$0	\$0	\$0	\$0	\$0	\$0	\$23,000	\$27,500	\$29,500	\$30,500	\$31,500	\$42,500
GRAND TOTAL	\$1,238,750	\$2,097,750*	\$1,427,750*	\$1,210,750*	\$1,220,750*	\$1,185,750*	\$762,900	\$1,071,400	\$1,198,400	\$900,400	\$890,400	\$827,400

*Estimated