

WRC RESEARCH PORTFOLIO FOR 2009/10

Ksa 1 Research Portfolio for 2009/10

(NS) - New non-solicited projects (S) – New solicited projects			
THRUST 1: WATER RESOURCE ASSESSMENT AND PLANNING			
<i>Programme 1: Catchment data and information systems</i>			
<i>Project No</i>	<i>Title</i>	<i>Contractor</i>	<i>Term</i>
#1690	Remote sensing as a tool to determine the legal compliance of surface and groundwater users in a catchments (NS)	GEOSS	01/04/06 – 31/03/10
#1751	A methodology for near-real time spatial estimation of evaporation(NS)	CSIR	01/04/07 – 31/03/10
1763	The identification and delineation of high-yielding well-field areas in Karoo aquifers as future water supply options to local authorities.(S)	Groundwater Africa	01/04/07– 31/03/11
1851	Development and application of global navigational satellite systems (GNSS) methodology for groundwater resource assessment (NS)	Umvoto Africa (Pty) Ltd	01/4/08 –31/03/11
1846	Optimised monitoring of groundwater - surface water - atmospheric parameters for enhanced decision making at a local scale (S)	CSIR	01/4/08 – 31/03/11
1908*	The preparation of a hydrologically improved for South Arica based on the SRTM data set (NS) digital elevation model	Agricultural Research Council	1/4/09 – 31/3/11
1909*	Reducing uncertainties of evapotranspiration and preferential flow in the estimation of groundwater recharge (NS)	CSIR	1/4/09 – 31/3/12
1916*	The hydrogeology of groundwater Region 10: Karst Belt (s)	Private Consultant	1/4/09 – 31/3/11
<i>Programme 2: Surface water / groundwater hydrology</i>			
1488	Protocol for assessing the sustainability of springs (NS)	Maluti Water	01/04/04 – 30/09/09
#1565	Flow conceptualisation, recharge and storability determination in Karoo aquifers (S)	SRK	01/04/05 – 31/03/10
#1685	The use of ²²² Rn as a hydrological tracer in natural and polluted environment (NS)	CSIR	01/04/06 – 31/03/10
1693	Basement aquifers in support of rural communities in Limpopo, North-West and Mpumalanga Provinces (with special emphasis on transboundary aquifer systems) (NS)	UP	01/04/06 – 31/03/10
1748	Hydropedological interpretation of the soils of selected catchments with the aim of improving efficiency of hydrological models (NS)	UFS	01/04/07 – 31/03/10
1752	Influence of catchment development on peak urban runoff (NS)	UP	01/04/07 – 31/03/10
1753	Land-water linkages: Agent-based modelling of land use change and its impact on water resources in the Modder River basin(NS)	Central University of Technology, Free State	01/01/07 – 31/12/09
1760	Measurement of the bulk flow and transport characteristics of selected fractured rock aquifer systems in SA (S)	UFS	01/04/07–31/03/11
1907*	The use of isotope hydrology to characterise and assess water resources in South(ern) Africa (s)	University of the Witwatersrand	1/4/09 – 31/3/12
1913*	Modelled sea-surface temperature scenario considerations and Southern Africa's seasonal rainfall and temperature predictability (NS)	South African Weather Service	1/4/09 –31/3/12
<i>Programme 3: Water resource planning</i>			
1840	Integrating water resources and water services management tools (S)	WRP Consulting Engineers	01/04/08 – 31/03/11

Programme 4: New Water			
#1759	Review and update of the SANCOLD Guidelines for the design of freeboard of dams(NS)	US	01/04/07 – 31/03/10
1764	The development and calibration of South Africa's National Standards for Water Retaining Structures (S)	US	01/04/07 – 31/03/10
1838	Identification, estimation, quantification and incorporation of risk and uncertainty in water resources management tools in South Africa (S)	Rhodes University	01/04/08 – 31/03/11
#1852	An investigation of the potential use of ocean colour remote sensing to assess the influence of variations in freshwater inputs to coastal ecosystems: Phytoplankton and sediment dynamics of the Natal bight. (NS)	CSIR	01/04/08 – 31/03/10
THRUST 2: MANAGEMENT OF NATURAL AND HUMAN-INDUCED IMPACTS ON WATER RESOURCES			
Programme 1: Developing predictive tools and adaptive measures to global climate change and hydroclimatic variability			
#1562	Secondary impacts on water resources due to primary changes in precipitation and temperature associated with climate change (S)	UCT	01/04/05 – 31/03/10
#1681	The role of antecedent conditions in determining rainfall characteristics during the early part of the rainfall season (NS)	UCT	01/04/06 – 31/03/10
1747	Multidisciplinary analysis of hydroclimatic variability at the catchment scale(NS)	UCT	01/04/07 – 31/03/10
1843	An evaluation of the sensitivity of socio-economic activities to climate change in climatically divergent South African catchments (S)	UKZN	01/04/08 – 31/04/11
1847	Tropical systems from the southwest Indian Ocean into southern Africa: Impacts, dynamics and projected changes. (NS)	ARC	01/04/08 – 31/3/11
1910*	Parasites and related interactions in water resources in rural communities in the Limpopo Province (NS)	University of Venda	1/4/09 – 31/3/11
1914*	Investigation of unsteady flow conditions at dam bottom outlet works due to air entrainment during gate closure(NS)	University of Stellenbosch	1/4/09 – 31/3/11
Programme 2: Managing human-induced impacts on water quality and quantity			
1561	Persistent organic pollutants (POPs) in the environment (S)	North-West University	01/04/05 – 30/06/09
#1568	Development of a model to assess the costs associated with eutrophication (S)	Umgeni Water	01/04/05 – 31/03/10
#1686	Endocrine disruptive chemical (EDC) activity and health effects of identified veterinary compounds in surface and groundwater (NS)	UP	01/04/06 – 31/03/10
#1749	Development and testing of a health risk assessment framework to derive guidelines for endocrine disruptors (EDCs) in drinking water(S)	CSIR	01/04/07 – 31/03/10
#1754	A national survey of mercury levels in South African resources(NS)	CSIR	01/04/07 – 31/03/10
1756	Investigation into the effects of water quality (organic vs. inorganic) on the immune systems of humans(S)	UWC	01/03/07 – 28/02/10
1845	A comparison of the costs associated with pollution prevention measures to that required to treat polluted water resources (S)	CSIR	01/04/08 – 31/03/11
Programme 3: Integrated flood and drought management			
1683	Soil moisture from satellites: daily rainfall maps over RSA, for flash flood forecasting, drought monitoring, catchment management and agriculture (NS)	Pegram & Associates	01/04/06 – 31/03/10

1906*	A comprehensive short term heavy rainfall forecasting system for South Africa with first implementation over the Gauteng Province (NS)	University of Pretoria	1/4/09 – 31/3/12
1911*	Development of a system dynamics model for the implementation of IWRM in South Africa: phase 1 - deriving performance indicators for IWRM implementation on a catchment scale (NS)	Jeffares & Green (PTY) Ltd	1/4/09 – 31/3/10
Programme 4: Water resource quality management			
#1563	Water resources management in rainwater harvesting: An integrated systems approach (S)	Source Strategic focus	01/04/05 – 31/03/10
#1697	An Investigation into the effects of atmospheric pollutants on surface water quality in the eastern regions of South Africa (NS)	UKZN	01/04/06 – 31/03/10
#1692	GIS based assessment of non-point source pollution in Kuils-Eerste River catchments, Cape Town. (NS)	UWC	01/04/06 – 31/03/10
1755	Water quality monitoring data and target users: Maximising value(NS)	CSIR	01/04/07 – 31/08/09
1915*	Guidelines for EDC management in water resources: Volume 1: Monitoring and Assessment Guide(s)	Pretoria University	1/4/09 – 31/3/12
1904*	Nutrient and organic carbon fluxes from small-scale agriculture (NS)	University of KwaZulu-Natal	1/4/09 – 31/3/12
to be targeted*	Guidelines for EDC management in water resources: Volume 4: Management Options for EDCs in Catchments.	Golder Associates Africa (Pty) Ltd	1/4/09 – 31/3/12
THRUST 3: WATER RESOURCE PROTECTION			
Programme 1: Protection and management of surface water and groundwater quality			
#1504	Novel silicone rubber integrative passive field sampler (S)	Venda Univ	01/04/04 – 31/03/10
#1694	Sampling and monitoring protocol for radioactive elements (NS)	UWC	01/04/06 – 31/03/10
1766	Field investigations to study the fate and transport of light non-aqueous phase liquids (LNAPLs) in groundwater(S)	UFS	01/04/07 – 31/03/11
#1768	Investigation of the positive and negative consequences associated with the introduction of low-P detergents(S)	UKZN	01/04/07 – 30/03/10
#1769	Development of a conceptual framework for the regulation of water quality within the context of an integrated, preventative management approach(S)	Zitholele Consulting(PTY) Ltd	01/04/07 – 31/03/10
1849	Management of human-induced salinisation in the Berg River catchment and development of criteria for regulating land use in terms of salt-generating capacity (NS)	UP	01/04/08 – 03/03/12
#1850	Assessment of the toxicity of cyanobacteria in the Kruger National Park (NS)	ARC	01/04/08 – 31/03/10
1853	Quality control and assurance guideline for South African toxicity testing laboratories (NS)	CSIR	01/04/08 – 31/03/10
1854	Development of a risk indicator methodology to estimate the relative risk of pesticide contamination in South African water resources (NS)	CSIR	01/04/08 – 31/03/10
1905*	Investigation of the fate and transport of selected microorganisms in two simulated aquifer conditions in the laboratory and in the field (s)	CSIR	1/4/09 – 31/3/12
1912*	Implementation of a conceptual framework model for the regulation of water quality in an integrated, preventative management approach (NS)	Golder Associates Africa (Pty) Ltd	1/4/09 – 31/3/11
1917*	Groundwater management functions (s)	Umvoto Africa (Pty) Ltd	1/4/09 – 31/3/11

1934*	Scoping study on the management of microbial contamination (taking also chemical quality into consideration) in water resources in CMAs).	UP	01/4/09 – 31/3/10
#1848	Nitrate removal for groundwater supply to rural communities (NS)	CSIR	01/4/08 – 31/03/10
##1428	An investigation and formulation of methods and guidelines for the licensing of SFRA's with particular reference to low flows	UKZN	01/04/04-31/3/10
#1682	The impact of deep- rooted trees on the hydrological balance of a small catchment in the KwaZulu-Natal midlands (NS)	CSIR	01/04/06 – 31/03/10
1765	Sedimentation and sediment yield maps for South Africa(S)	US	01/04/07 – 31/03/10
#1767	<i>South African Handbook on Environmental Hydraulics(S)</i>	Ninham Shand	01/04/07 – 31/03/10
THRUST 4: WATER RESOURCES INSTITUTIONAL ARRANGEMENTS			
Programme 1: Institutional governance and reforms			
1935 (1573)*	A management tool for the Inkomati Basin with focus on improved hydrological understanding for risk-based operational water management (carry over) (s)	UKZN	01/04/09 – 31/3/13
#1689	A philosophy and strategy enabling learning for good ecosystem governance (NS)	CSIR	01/04/06 – 31/03/10
#1762	The criteria necessary for the success of women in the water sector(S)	Palmer Development Group	01/04/07 – 31/03/10
1837	Exploring the lowest appropriate level of water governance in South Africa (S)	UWC	01/04/08 – 31/03/10
1839	The impact of IWRM on the lives of women and the poor in South Africa (S)	Ninham Shand	01/04/08 – 31/03/10
1855	Water allocation reform, instruments and processes for achieving equity and gender balance (NS)	Sinelwati Scientific cc	01/04/08 – 31/03/10
1842	Towards regulation of water resource management in South Africa (s)	Pegasys Strategic Management	01/04/08 – 31/03/10
##1570	Econometric model to predict the effect that various water resource management scenarios would have on South Africa's economic development (S)	Conningarth Economist	01/04/05 – 30/03/10
1844	An investigation into the water infrastructure development financial allocation pathways in municipalities (S)	African Centre for Water Research	01/04/08 – 31/03/10
Programme 4: Transboundary water resources			
1758	Review of the involvements of national water institutions and civil society in international agreements in South Africa(S)	Pegasys Strategic Management	01/04/07 – 31/12/09
Programme 5: Future scenarios			
1841	The water sector institutional landscape by 2025 (S)	CSIR	01/04/08 – 31/10/10

KSA 2 Research portfolio for 2009/10

THRUST 1: ECOSYSTEM PROCESSES			
Programme 1: Estuarine processes			
1591	Biochemical processes in a groundwater-fed inter-tidal ecosystem	University of Cape Town, Geology Dept.	01 Sept 2006 –30 June 2009
Programme 2: Riverine processes			
1676	Periphyton flow dynamics	University of Cape Town, Freshwater Research Unit,	01 Feb 2006 –31 Dec 2010
1796	Deriving conservation targets for freshwater systems	GroundTruth cc	01 April 2008 – 31 Mar 2010

S1790	A framework for the classification of drainage networks in savannah landscapes	University of the Witwatersrand Centre for Water in the Environment	01 April 2008 – 31 Mar 2010
1872	Pilot design, implementation and testing of a simple cost-effective method for monitoring water temperatures in SA streams and rivers: Phase II: Refinement of the initial design	DH Environmental Consulting	01 Nov 2008-31 Mar 2010
*1928 1001637	An assessment of the current biodiversity of amphibians associated with the major river systems of the Kruger National Park and the physical and chemical factors affecting their distribution.	Bioassets cc	01Apr 2009 – 31 July 2013
*1929 1001639	Biomonitoring the fish health of two impoundments in Olifants River, Limpopo Prov.	University of Limpopo	01Apr 2009 – 31 July 2012

Programme 3: Wetland processes

S1584#	National Wetland Programme : Phase II – Wetland Health & Integrity	University of Cape Town Freshwater Research Unit	01 Apr 2006 –30 June 2009
1857	To investigate the capability of the Mfabeni Mire (St Lucia) to respond to climatic and land-use stresses and its role in sustaining discharge to downstream and adjacent ecosystems	Rhodes University	01 Apr 2008 – 30 Apr 2010
*1921 1001523	Establishing ranges of water quality variables in wetlands and their relationship to land use and ecosystem response: towards refining the ecological Reserve	University of Cape Town Freshwater Research Unit	01Apr 2009 –31 July 2011
*1923 1001568	Regional wetland processes of the Maputaland coastal aquifer on the Zululand coastal plain	ARC Institute for Soil Climate & Water	01 Jan 2009 –31 July 2010
*1926 1001597	Evapotranspiration from the Nkazana swamp forest and the Mfabeni Mire	CSIR NRE (Pietermaritzburg)	01 Jan 2009 –31 July 2011
*1927 1001611	Identifying relationships between soil processes and biodiversity to improve restoration of riparian ecotones invaded by invasive acacias	University of Stellenbosch	01 Jan 2009 –31 July 2012

Programme 4: Groundwater-dependent ecosystems

1586	Framework development for the sampling, classification and geographical occurrence of stygobiont amphipods in South Africa	North-West University, Zoology Department	01 Nov 2005 – 31 July 2010
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THRUST 2: ECOSYSTEM MANAGEMENT AND UTILISATION

Programme 1: Ecological Reserve

1587#	Environmental water requirements for non-perennial systems (K5.414 continued)	University of the Free State, Centre for Environmental Management	01 Apr 2005 – 31 July 2009
* 1798 1001299	Environmental water requirements for non-perennial systems Phase III (K5/1587 continued)	University of the Free State Centre for Environmental Management	01 Apr 2009 – 31Mar 2012
1797	Application and testing of a strategic adaptive management system for freshwater protection, associated with implementation of South Africa's national water policy	SA National Parks Scientific Services	01 July 2008 – 31 Mar 2011

1799	Water temperatures and the ecological Reserve	Freshwater Consulting Group	01 Jan 2008 – 31 Mar 2011
1856	Development of a revised desktop Reserve estimation model 'Application of abiotic components of the Reserve within the SPATSIM program & other tools'	Water for Africa	01 June 2008 – 31 July 2010
*S1920 TARGET	Shared rivers initiative: Phase II	Association for Water & Rural Development (AWARD)	1 June 2009 – 31 May 2011
*S1930	Review and update of resource directed measures (RDM) for estuaries	Anchor Environmental Consultants	01 Apr 2009 – 31/Mar 2010
*S1873 TARGET	Decision support system for IFR	Southern Waters	01 Dec 2008 – 31/Mar 2011
Programme 2: Estuary management			
S1413 #	Valuation of estuary services in SA	Nelson Mandela Metropolitan Univ, Economics Dept.	01 Apr 2004 – 30 June 2009
1679	CERM: East Kleinemonde estuary modelling study	Anchor Environmental Consultants	01 Apr 2006 – 31 Mar 2009
1705	Estuaries and economic empowerment	UKZN Centre for Environment, Agriculture & Development	01 Apr- 2007– 31Mar 2010
* 1924	The application of choice modelling techniques to guide the management of estuaries in South Africa – case studies at the Kromme, Bushmans, Sundays and Keurbooms estuaries.	Nelson Mandela Metropolitan University	01 Apr 2009 – 31 July 2011
Programme 3: Ecosystem health			
1589 S#	The effects of streamflow manipulation on the intermediate hosts and vector populations of disease and the transmission of associated parasites	Institute of Natural Resources	01 Apr 2005 – 31 July 2009
1677	Conservation model for threatened fish species	University of Limpopo	01 Apr 2006 – 31 Mar 2009
1708 S	Development of an ecosystem risk assessment model to determine the risk of EDCs in the water environment	University of Stellenbosch	01 July 2007 – 31 March 2010
Programme 4: Environmental water quality			
1484#	Application of chronic (sub-lethal) toxicity endpoints to the development of resource quality objectives	Institute for Water Research, Rhodes University	01 Apr 2004 – 31 July 09
1675#	The application of ecological informatics modelling approaches to South African conditions with preliminary testing on algal blooms	North-West University	01 Apr 2006 – 31 May 2009
1707	Development of a diatom-based biomonitoring protocol for South African rivers and streams Phase III: Regional testing, method refinement & calibration; index formulation and river health programme accreditation	DH Environmental Consulting	01 Apr 2007– 31 Mar 2010
Programme 5: Endocrine disrupting compounds (EDCs) in water sources			
1674 S# TARGET	Assessment of environmental exposure & health risk in an area where ongoing DDT spraying occurs	University of Pretoria, Department of Andrology	01 Apr 2006 – 31 Mar 2009
1680#	Amphibian metamorphosis as a biological model to study the effect of endocrine contaminants on thyroid function	University of Stellenbosch Department of Zoology	01 Apr 2006 – 31 Mar 2009
1706#	Environmental assessment in an area where ongoing DDT spraying occurs	Rhodes University, Institute for Water Research	01 Oct 2007 – 30 Sep 2009
*1932 S	A study of the interactive effects of pesticide mixtures in water on selected species	University of Stellenbosch	01 Apr 2009 – 30 Mar 2012
Programme 6: Socio-economic considerations			
S1644 #	Framework and manual for the valuation of goods and services from aquatic ecosystems for the resource directed measures (RDM)	CIC International	01 Apr 2007 – 31 Mar 2009
1709#	Development and testing of a coherent, integrated and practicable set of indicators for the sustainable use and management of communal wetlands and their catchments, with a strong focus on rehabilitation.	Association for Water & Resource Development (AWARD)	01 Jan 2007– 30 Jun 2009

1800	Knowing, caring, and acting: Making use of socio-cultural perspectives to understand and improve conservation	CSIR Natural Resources & the Environment	01 Jan 2008 – 31 Mar 2010
* 1925	Establishing the fishery potential of the Nandoni Dam in the Luvuvhu River, Limpopo Province	University of Venda	01 Apr 2009 – 30 July 2012
Programme 7: Ecosystem governance			
1710	Management effectiveness in implementing cross-sector policy objectives for conserving freshwater biodiversity	CSIR Natural Resources & the Environment	01 Jan 2007– 31 Mar 2009
1711 S	Shared rivers initiative Phase 1A KNP rivers	Association for Water & Rural Development (AWARD)	1 Nov 2007 – 30 Oct 2010
1783 S	Shared rivers initiative Phase 1B : Communication (holistic rivers programme)	CSIR Natural Resources & the Environment	01 Jan 2008 – 31 Mar 2010
1801	Identifying and enabling protection of national freshwater heritage ecosystems for South Africa	CSIR Natural Resources & the Environment, & SANBI	01 Mar 2008 – 31 May 2010

THRUST 3: ECOSYSTEM REHABILITATION

Programme 1: Wetland rehabilitation

Programme 2: River and impoundment rehabilitation

1487	Integrated management of water hyacinth in SA	University of the Witwatersrand Animal Plant & Environmental Sciences	01 Apr 2004– 31 Mar 2010
S1643 TARGET	The potential of food-web manipulation for the restoration of eutrophic South African impoundments	DH Environmental Consulting	01 Apr 2007– 30 Jun 2009
*S1918 TARGET	Food-web manipulation Phase II: Food-web interactions in South African reservoirs traced using stable isotopes	DH Environmental Consulting	01 Jan-2009 31 Jan 2012
* 1922	Conservation of tigerfish, <i>Hydrocynus vittatus</i> , in the Kruger National Park with the emphasis on the establishment of management plans for the protection of its riverine habitat.	University of Johannesburg	01 Apr 2009 – 30 July 2012

KSA 3 Research Portfolio for 2009/10

THRUST 1: WATER SERVICES - INSTITUTIONAL AND MANAGEMENT ISSUES

Programme 1: Cost recovery in water services

1810 (S)	Guidelines on domestic water accounts	Sarah Slabbert Associates	01/04/08 - 31/03/10
1811 (S)	Guidelines on pricing and debt management	Arcus Gibb (Pty) Ltd	01/04/08 - 31/03/10
*1892 (S)	Critical assessment of raising basic level of water services	Nemail Consulting	01/04/09 - 31/03/11

Programme 2: Institutional and management issues - Water services

1784	Guidelines on the conditiona assessment of water services infrastructure	Jeffares and Green	01/04/07 - 31/03/09
1814 (S)	People Centered Approaches	University of Johannesburg	01/04/08 – 31/03/10
1812 (S)	Situation analysis of water services	PD Naidoo & Associates	01/04/08 – 31/03/10
*1893 (S)	Guidelines on determining the vulnerability and risks of water services infrastructure	Emanti Management	01/04/09 - 31/03/11
1001235	Development protocols and guidelines for municipalities to undertake studies to determine the impact or influence of climate change on water services delivery	Reserved	01/04/09 - 31/03/11

Programme 3: Innovative management arrangements - Rural water supply

1001237	Social scarcity of water and water use	Reserved	01/04/09 - 31/03/11
1001243	Investigating operational and indigenous knowledge of water use and waste management, and	Reserved	01/04/09 - 31/03/11

	estbslshing ways to integrate them into water service management		
*1888 (S)	Investigating the social vulnerability of people and their livelihoods and their response to water infrastructure	Umvoto Africa	01/04/09 - 31/03/11
Programme 4: Regulation in the water services sector			
*1871 (S)	Development of a framework and model to regulate the competencies and training of managers and technicians in the provision of water services	Nelson Mandela Metropolitan University	01/01/09 - 31/03/10
THRUST 2: WATER SUPPLY AND TREATMENT TECHNOLOGY			
Programme 1: Drinking water treatment technology			
1527	Development of enhanced floating media separation for drinking water production and pre-treatment in rural water supply	Stellenbosch University	01/04/04 – 30/09/09
1716	Development of a durable and reliable wave-energy reverse osmosis pump	The Impact Free Water Group	01/04/07 – 31/12/10
1717	Two-stage reclamation of filter backwash water at treatment plants using source water with high algal content	University of Pretoria	01/04/07 - 31/08/09
*1883 (S)	Assessment of the prevalence of organic compounds in raw and treated water for potable purposes their fate in current treatment plants and compilation of a guideline on best available technology for the removal thereof	University of Johannesburg	01/04/09 - 31/03/12
*1894	Wastewater reclamation for potable reuse	Umgeni Water	01/04/09 - 31/03/12
*1896	The establishment and piloting of the Technical Assistance Centre for small water and wastewater treatment plants	Chris Swartz Water Utilisation Engineers	01/04/09 - 31/03/10
Programme 2: Water treatment technology for rural communities			
1442	Development of appropriate brine electrolyzers for disinfection of rural water supplies	University of the Western Cape	01/04/03 - 30/06/09
1598	The development of immersed membrane microfiltration systems for the treatment of rural waters and industrial waters	Durban University of Technology	01/04/05 – 30/04/09
1668	Compliance of non-metropolitan South African potable water providers with accepted drinking water quality and management guidelines and norms	Tshwane University of Technology	01/03/06 - 01/04/09
1836 (S)	Application and performance of slow sand filtration	Cape Peninsula University of Technology	01/04/08 – 31/03/11
*1884 (S)	Compilation of guidelines for the selection and use of home water treatment systems and devices.	Tshwane University of Technology	01/04/09 - 31/03/12
Programme 3: Drinking water quality			
1816 (S)	EDC bio-assay toolbox	Biostream Univ of Pretoria	01/04/08 – 31/03/10
* 1885	B-N-Methylamino-L-Alanine bioaccumulation and biomagnification: Health risks and water treatment possibilities	Nelson Mandela Metropolitan University	01/04/09 - 31/03/11
* 1902	Rapid enzymatic detection of organochlorine pesticides in water	Rhodes University	01/04/09 - 31/03/11
Programme 4: Water distribution and distribution systems			
1721	Inverse transients to determine deficiencies in pipelines	University of Pretoria	01/04/07 – 31/03/10
1820	Hydraulic capacity of pipelines	University of Pretoria	01/04/08 – 31/03/11
1821	Grey water reticulation	University of the Witwatersrand	01/04/08 – 31/03/11
1822	Mass balances modelling over wastewater treatment plants III	University of Cape Town	01/04/08 – 31/03/10
1823	FISHing for indigenous ANAMMOX bacteria	Stellenbosch University	01/04/08 – 31/03/10
1824	Effects of urine separation and treatment on wastewater effluent quality	CSIR - Stellenbosch	01/04/08 – 31/03/11

1825	Denitrification in trickling filters	CSIR - Stellenbosch	01/04/08 – 31/03/10
1826 (S)	Alternative technology for stormwater management	University of Cape Town	01/04/08 – 31/03/12
1827 (S)	Improving sewerage for South Africa	University of Cape Town	01/04/08 – 31/03/12
1828 (S)	Sewer master planning tools and guidelines	Stellenbosch University	01/04/08 – 31/03/10
1540	Influence of sludge conditioners on the soil conditioning properties of sewage sludge	University Pretoria	01/04/04 – 31/03/09
1724	Sustainable and beneficial use of biosolids land application strategies: quantifying nitrogen and phosphorous plant-soil mass balances	University of Pretoria	01/06/07 – 31/06/10
1829	Investigating the potential of deep row entrenchment of pit latrine and waste water treatment works sludge for forestry and land rehabilitation purposes.	Partners in Development (Pty) Ltd	01/04/08 - 31/03/11
1627	A first order assessment of the quantity and quality of non-point sources of pollution associated with the industrial mining and power generation sectors	Pulles Howard and De Lange	01/04/05 – 31/09/09
1830	An assessment of how water quality and quantity will be affected by mining method and mining of the Waterberg coal reserves	University of the Free State	01/04/08 – 31/03/10
Programme 2: Regulatory mechanisms to improve industrial and mine-water management			
1734	Protocol for quantitative assessment of industrial effluents for discharge permitting	University of KwaZulu-Natal	01/04/07 – 31/03/11
Programme 3: Minimising impact of waste on the water environment			
1659	Reclamation of water from flooded Witwatersrand gold mines by selective dewatering of key underground compartments.	Golder Associates Africa (Pty) Ltd	01/04/06 - 31/12/09
1735	Refinement of the Decision Support System for metalliferous tailing disposal facilities	Golder Associates Africa (Pty) Ltd	01/05/07 – 31/05/09
Programme 4: Minimising waste production			
1832 (S)	Technical guidelines for the implementation of cleaner production initiatives Sources of Pollution) in support of determining an Incentive Charge for municipal effluent charges	Process Optimization and Resource Management (PRO&RM)	01/04/08 - 31/03/10
* 1898	Development of a zero-effluent mathematical model for wastewater minimization in a pharmaceutical facility	University of Pretoria	01/04/09 - 31/03/11
Programme 5: Improved ability to predict and quantify effects			
1833 (S)	An assessment of the key factors that influence the environmental sustainability of a large inland industrial complex	CSIR	01/04/08 - 31/03/11
* 1895	Field testing methods to determine the evaporation rates on brine solutions produced from mine water treatment mine water treatment	Golder Associates Africa	01/04/09 - 31/03/10
Programme 6: Beneficiation & treatment of industrial and mining effluents			
1725	"Health for Purpose" in wetlands treating waste streams	University of Cape Town	01/04/07 - 31/03/11
1726	Beneficiation of agricultural industry effluents	University of Cape Town	01/04/07 – 31/03/10
1727	Novel technology for the recovery of water and solid salts from hypersaline brines: Eutectic Freeze Crystallization	University of Cape Town	01/04/07 – 31/03/10
1834 (S)	Towards passive treatment solutions for the oxidation of sulphide and subsequent sulphur removal from acid mine water	Golder Associates Africa	01/08/08 – 31/03/11
* 1891 (S)	Laboratory and pilot scale development of the Ambient Temperature Ferrite Process (ATFP)	Phathamanzi Water Treatment	01/04/09 - 31/03/10
* 1897	Nanotechnology in water treatment	University of the Western Cape	01/05/09 - 31/03/12
* 1900	Pilot application of a dual stage membrane	Althydro CC	01/04/09 -

	bioreactor for industrial effluent treatment		31/03/11
THRUST 5: SANITATION AND HYGIENE EDUCATION			
Programme 1: Advocacy, health and hygiene education			
1737	A guideline document for emergency infection of drinking water	Tshwane University of Technology	01/04/07 - 31/03/10
1738	Assessment of watsan and hygiene in relation to home/community based care services for HIV AIDS infected individuals in rural and peri-urban areas	University of Venda/Department of Microbiology	01/12/07 - 31/10/09
1813	How does the HIV/AIDS epidemic in South Africa impact on watsan	UWC consortium	1/01/08 - 31/03/10
*1886 (S)	Survey of handwashing hygiene behaviour	Sustento Development Services	01/04/09 - 31/03/11
*1890 (S)	Establishment of sanitation technology demonstration centre	CSIR	01/04/09 - 31/03/11
1654	Sustainable options for community level management of greywater in settlements without on-site waterborne sanitation.	University of Cape Town/Department of Civil Engineering	01/04/06 - 31/03/09
1741	Examine the understanding and interpretation of sanitation policy and programmes	Hlathi Development Services	01/04//07- 31/03/09
1742	What do we do to accelerate sanitation?	Development Services Engineering	01/04//07 31/03/09
1743 (S)	Free basic sanitation – is it possible?	Hlathi Development Services	01/04/07 – 31/03/09
* 1901	An approach reducing risks and hazards from Human waste generated by informal settlements: community-based risk assessment with municipal partnerships	Cape Peninsula University of Technology	01/04/09 - 31/03/11
1745 (S)	Understanding the sludge accumulation in VIPs and other on-site sanitation systems and strategies to manage desludging in the future when pits are full	Partners in Development	01/04/07 – 31/03/10
1781	Develop more robust and lighter VIP structures	University of Pretoria	01/04/07 - 31/03/10
1887 (S)	Piloting and Testing the pour flush latrine technology for its applicability in South Africa	Partners in Development (Pty) Ltd	01/04/09 - 31/03/11

KSA 4 Research portfolio for KSA 4 for 2009/10

THRUST 1: WATER UTILISATION FOR FOOD AND FIBRE PRODUCTION			
Programme 1: Water-efficient production methods in relation to soils, crops and technology in rain-fed and irrigated agriculture			
1482 **	Standards and guidelines for improved efficiency of irrigation water use from dam wall release to root zone application	ARC/Institute of Agricultural Engineering	01/04/04-31/03/10
1574	Adapting the wetting front detector to the needs of small-scale furrow irrigation and providing a basis for the interpretation of salt and nutrient measurements in the water sample	University of Pretoria, Plant Production & Soil Science	01/04/05-31/03/09
1650	Guidelines for irrigation management in pasture production	CSIR, Natural Resources and the Environment	01/04/06-31/03/11
1770 **	Water use of fruit tree/orchard crops	CSIR, Natural Resources and the Environment	01/04/07-31/03/13
1771 **	Water use of drought-tolerant food crops	University of KwaZulu-Natal, Crop Science	01/04/07-31/03/13
1874 *	Water use of cropping systems adapted to bio-climatic regions in South Africa and suitable for biofuel production	University of KwaZulu Natal, School of Bioresources Engineering and Environmental Hydrology	1/04/09- 31/03/15
Programme 2: Fitness-for-use of water for crop production, livestock watering and aquaculture			
1639	Guidelines for sustainable use of greywater in small-scale agriculture and gardens in South Africa	University of KwaZulu-Natal, School of Biological and Conservation Sciences	01/04/05-31/03/09
1773* *	A quantitative investigation into the link between irrigation water quality and food safety	University of Stellenbosch, Food Science	01/04/07-31/03/12
1802	Interaction between aquaculture and water quality in on-farm irrigation dams: Extended monitoring and mitigating procedures to manage environmental impact	University of Stellenbosch, Division of Aquaculture	01/04/08-31/03/12

1875*	An investigation into the link between water quality and microbiological safety of fruit and vegetables from the farming to the processing stages of production and marketing	University of Pretoria, Department of Microbiology and Plant Pathology	1/04/09- 31/03/15
THRUST 2: WATER UTILISATION FOR FUELWOOD AND TIMBER PRODUCTION			
<i>Programme 1: Water-efficient production methods and systems in agro-forestry, woodlands and forestry plantations</i>			
1480	Agro-forestry systems for improved food production through the efficient use of water	CSIR, Natural Resources and the Environment	01/04/05-31/03/09
1803	The impact of re-establishing indigenous plants and restoring the natural landscape on sustainable rural employment and land productivity through payment for environmental services	ASSET Research	01/04/08-31/03/13
1876*	Water use and economic value of the biomass of indigenous trees under natural and plantation conditions	CSIR-NRE, c/o agrometeorology	1/04/09- 31/03/15
THRUST 3 : WATER UTILISATION FOR POVERTY REDUCTION AND WEALTH CREATION IN AGRICULTURE			
<i>Programme 1: Sustainable water-based agricultural activities in rural communities</i>			
1351* *	The effect of the introduction of agro-forestry species on the soil moisture regime of traditional cropping systems in rural areas. Phase II: On-farm trials of alternative agro-forestry systems	CSIR, Natural Resources and the Environment	01/04/02-31/03/11
1465	Sustainable techniques and practices for water harvesting and conservation and their effective application in resource-poor agricultural production in KwaZulu-Natal Province	Zakhe Agricultural College	01/04/03-31/03/09
1477	Best management practices for small-scale subsistence farming on selected irrigation schemes and surrounding areas through participatory adaptive research in Eastern Cape Province	University of Fort Hare, Soil Science	01/04/04-31/03/09
1478	Sustainable techniques and practices for water harvesting and conservation and their effect application in resource poor agricultural production in Eastern Cape Province	University of Fort Hare, Agricultural Economics	01/04/04-31/03/09
1575	Participatory development of training material for agricultural water use in homestead farming systems for improved livelihoods	Rural Integrated Engineering (Pty) Ltd	01/04/05-31/03/09
1579* *	Nutritional value and water use of indigenous crops for improved rural livelihoods	University of Pretoria, Centre for Nutrition	01/04/05-31/03/10
1648* *	Assessment of the social and economic acceptability of rainwater harvesting and conservation practices in selected peri-urban and rural communities	University of the Free State, Agricultural Economics	01/04/06-31/03/11
1775* *	Rainwater harvesting and conservation (RWH&C) for rangeland and cropland productivity in communal areas in selected provinces in the semi-arid area of South Africa	ARC, Institute of Soil, Climate and Water	01/04/07-31/03/13
1776	Development of a comprehensive learning package for education on the application of water harvesting and conservation (WH&C)	Umlhlab Consulting Group, Agricultural and Rural Development	01/04/07-31/03/12
1804	Improving plot-holder livelihood and scheme productivity on smallholder canal irrigation schemes in Limpopo Province	Tshwane University of Technology, Crop Science	1/04/08-31/03/12
1878*	Empowerment of women in rural areas through water use security and agricultural skills training for gender equity and poverty reduction	University of KwaZulu- Natal, School of Environment Sciences	1/04/09- 31/03/14
<i>Programme 2: Integrated water management for profitable farming systems</i>			
1580**	Revitalisation of provincial fish hatcheries and training facilities to promote profitable aquaculture	Rhodes University, Ichthyology and Fisheries Science	01/04/05-31/03/10
1649**	Development of training material for extension in irrigation water management	University of Pretoria, Agricultural Economics, Extension and Rural Development	01/04/06-31/03/11

1778	Awareness creation, implementation plans and guidelines for management of sustainable on-farm and on-scheme water measurement	WSM Leshika (Pty) Ltd	01/04/07-31/03/11
1779	Assessment of the contribution of water use to value chains in agriculture	University of the Free State, Agricultural Economics	01/04/07-31/03/12
1805	The development and testing of an integrated set of models to evaluate the financial/economic impact of irrigation water curtailment decisions on participant farm case studies in the Crocodile Catchment	CPH Water	01/04/08-31/03/11
1806	Technology transfer on the technical aspects and cost estimating procedures of surface and sub-surface drip irrigation systems	Agricultural Research Council, Institute for Agricultural Engineering	01/04/08-31/03/11
1879*	Analysis of food-value chains in rain-fed and irrigated agriculture to include emerging farmers in the mainstream of the economy	University of KwaZulu-Natal, Institute of Natural Resources	1/04/09- 31/03/14
THRUST 4: WATER RESOURCE PROTECTION AND RECLAMATION IN AGRICULTURE			
<i>Programme 1: Sustainable water resource use on irrigation schemes and within river catchments</i>			
1647	Managing salinity associated with irrigation in selected areas in South Africa	University of the Free State, Soil, Crop and Climate Sciences	01/04/06-31/03/10
1880*	Methodology to monitor the status of water logging and salt- affected soils on selected irrigation schemes in South Africa	Agricultural Research Council, Institute for Soil, Climate and Water	1/04/09- 31/03/14
<i>Programme 2: Impact assessment and environmental management of agricultural production</i>			
1516	Modelling non-point source pollution in agriculture from field to catchment scale	Sigma Beta	01/04/04-30/09/09
1646**	Applications of rainfall forecasts for agriculturally related decision making in selected catchments	University of KwaZulu-Natal, School of Bioresources Engineering and Environmental Hydrology	01/04/06-31/03/11
1807	The impacts of unpaved access roads on runoff, sediment fluxes and soil water movement within timber plantations	Aquagreen Consulting	01/04/08-31/03/11
1808	Definition of process zones and connectivity in catchment scale NPS processes	University of KwaZulu-Natal School of Bioresources Engineering and Environmental Hydrology	01/04/08-31/03/10
1881*	Impact of wastewater irrigation by wineries on soils, crop growth and product quality	Agricultural Research Council, Infruitec-Nietvoorbij	1/04/09- 31/03/14
1882*	Adaptive interventions in agriculture to reduce vulnerability of different farming systems to climate change in South Africa	University of KwaZulu Natal, School of Bioresources Engineering and Environmental Hydrology	1/04/09- 31/03/14