Chapter Five

The Inkomati Catchment Management Agency

This chapter consists of three sections:

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SECTION 1:

CHARACTERISTICS OF THE INKOMATI WATER MANAGEMENT AREA

1. DESCRIPTION OF THE INKOMATI BASIN

The Inkomati Basin, which is the area to be served by the Inkomati Catchment Management Agency, consists of three major catchments and two minor catchments. The major catchments are the Komati, Crocodile and Sabie–Sand catchments, and the minor catchments are the Nwaswitsontso and Nwanedzi catchments. The two minor river catchments fall within conservation areas within the Kruger National Park.

The Inkomati Basin includes areas formerly under the jurisdiction of the homelands of Kangwane, Lebowa and Gazankulu, and portray the imbalances caused by the Apartheid policies of the past. Most households in these areas have practiced some dry-land agriculture for subsistence purposes. Where some assurance of water supply exists, there have been efforts by the inhabitants to develop commercial agricultural enterprises, mostly through participation in smallholder irrigation schemes.

Since 1994 great efforts have been made to redress historical imbalances, through service provision, land reform, development of water supply schemes and other government support, however much more needs to be done in terms of access to water. Integrated management of water resources at the Inkomati Basin is required to meet water supply needs and ensure that water quality is maintained.

1.1 NATURAL CHARACTERISTICS

The Inkomati Basin stretches over most of the Mpumalanga Province, the southern region of the South Africa’s Northern Province and the northern region of Swaziland. The rivers in these areas all flow into the Inkomati River, which
cuts across Mozambique and flows into the Indian Ocean. The expanse of the
total catchment area of the Inkomati Basin inside South Africa and part of
Swaziland is 31 230 sq. km.

The general climate of the basin varies from a warm to hot and humid climate in
the Lowveld, to a cooler and dry climate in the Highveld. The entire basin falls
within the summer rainfall region with a mean annual precipitation (MAP) of
approx. 736mm. The natural mean annual runoff (MAR) for the Inkomati Basin
inside South Africa (and Swaziland) is determined as 3 432 million m3. Exotic
afforestation has the effect of reducing this MAR to 2 915 million m3.

1.2. LAND USE

1.2.1. Population

According to the WMA Report (DWAF, 2003), the population in the Inkomati
WMA was estimated to be 1 462 000 in 1995, consisting of an urban and semi–
urban population of 940 000 people and the remainder classified as rural.

1.2.2. Livestock and Game

The total livestock and game numbers for the Inkomati Basin inside South Africa
are expected to be 514 400, expressed in equivalent large stock units (ELSU).
With extensive conservation areas inside the basin, a significant proportion of
the above figure constitutes game.

1.2.3. Irrigation

Irrigation is the primary water consumer inside the basin. The main crops
cultivated are sugar cane, citrus, sub–tropical fruits, tobacco and vegetables.
Irrigated agriculture is the mainstay of the basin’s economy, especially within
the Komati and Crocodile catchments.

Most of the irrigated land in the basin is still in the hands of white farmers,
especially in the Crocodile catchment, and as such, previously disadvantaged
farmers do not represent a significant proportion of irrigated agriculture. The
Nkomazi Irrigation Expansion programme (NIEP) has been effected in the Lower Komati sub-catchment. NIEP has resulted in the development of 5300 hectares for small cane growers over the past 6 years, and there is planned development of a further 1600 hectares towards the same purpose. It is envisaged that further irrigation development will mostly benefit black farmers in Nkomazi and Mswati regions. In the Upper Sand sub-catchment, about 2240 hectares is irrigable by black farmers.

The present irrigated area for the basin inside South Africa is estimated to be 87003 ha. Significant further irrigation development is still envisaged for the Komati River (both South Africa and Swaziland) and to a lesser extent for the Crocodile River. It is not expected that irrigation in the Sabie–Sand Catchment will be increased to any great extent. Historically, entry into the commercial farming sector has been difficult for people in the former homeland areas, due to a range of factors, including tenure rights, access to credit, limited DWAF agricultural support services and limited subsidisation of production. These factors, coupled with the taking up of most available water rights by white farmers, have limited options for emerging farmers.

1.2.4. Afforestation

Exotic afforestation has the effect of reducing the natural surface runoff and has been declared a Streamflow Reduction Activity (SFRA) in terms of the new Water Act. Exotic afforestation is only allowed this type of water use if a license has been issued for the activity. It is expected that the presently permitted areas will not increase in size in future. After irrigation, afforestation is the main consumer of water in the Inkomati River basin, although this is not necessarily the case for individual catchments, notably the Sabie–Sand Catchment. The permitted afforested areas within the basin presently stand at 365 257 ha (inside South Africa).

1.2.5. Industries

There are presently a number of existing factories, such as sugar mills, a paper mill and power stations, which draw water from the Inkomati system. Most notable is the abstraction by ESKOM of 104 million m3 per annum for power stations on the Highveld, outside the Inkomati basin.
1.3. WATER USE

It is estimated that 1 940 million m³ is consumed annually in the Inkomati Basin inside South Africa at present. This includes domestic, industrial, irrigation, afforestation, environmental and livestock and game water usage.

1.4. OTHER FEATURES OF THE INKOMATI CATCHMENT

1.4.1 Neighbouring States

The Inkomati River system is an international river system, originating in South Africa, flowing partly through Swaziland and contributing to the Inkomati River, which traverses Mozambique. There are a number of bilateral and trilateral agreements in place between the three countries that regulate their use of the water in the Inkomati Basin. The most recent of which is the Tripartite Interim Agreement between the Republic of Mozambique and the Republic of South Africa and the Kingdom of Swaziland (Interim IncoMaputo Water Use Agreement) for co-operation on the Protection and Sustainable Utilisation of the Water Resources of the Incomati and Maputo Watercourses. This agreement sets limitations on water use in each of the basin states; target flows to be maintained to sustain the riverine ecology and sets water quality standards.

The operating rules of the basin in order to achieve these cross-border flows are being developed through a separate task group, referred to as the Inkomati System Operation Task Group of the TPTC (ISOTG). According to the operating rules proposed by the ISOTG, as a first step towards the implementation of the various agreements between the countries, the Komati River must contribute 55% of the requirements of Mozambique at the border at Komatipoort (Ressano Garcia) while the Crocodile River must contribute 45%. Contribution from the Komati River needs to be apportioned between South Africa and Swaziland. In terms of the proposals of the ISOTG, the South African contribution would therefore be 42 million m³/annum at a 1:50 year equivalent assurance and 18 million m³/annum from Swaziland. It has been argued that Mozambique is not receiving its fair share of water available in the Komati and Crocodile Rivers and with its accelerated economic development, more water may need to be released in the future.
The operating rules now need to be developed further to include the whole WMA and to give full effect to the Interim IncoMaputo Water Use Agreement.

The other agreement of importance, especially in the Komati River catchment, is the Treaty between the Government of the Republic of South Africa and the Government of the Kingdom Swaziland on the Development and Utilisation of the Water Resources of the Komati River Basin that deals mainly with the development of the water resources of the catchment and which led to the construction of the Maguga and Driekoppies dams.

1.4.2. Water Quality

Water quality in the basin is generally quite good and within the guidelines set by DWAF, but there have been trends of decreasing water quality due to increased land and water use.

1.4.3. Water transfers

The Komati River is the only river within the Inkomati Basin that is subject to major water transfers outside its catchment. Approximately 131.5 million m³/a is transferred from the upper Komati to the Olifants River Basin, 104 million m³/a of which is for ESKOM. In addition, 135.5 million m³/a is transferred to the Mbuluzi River basin in Swaziland, mostly for irrigation.

1.4.4. Storage Dams

There are a number of large storage dams in the Inkomati Basin, spread over all three major catchments. A further 2 major dams are presently under construction ie. the Maguga Dam on the Komati River in Swaziland and the Injaka Dam on the Marite River in the Sabie sub-catchment. Other major dams are the Nooitgedacht and Vygeboom Dams on the Upper Komati River, Lake Matsamo on the Lomati River and Kwena Dam on the Crocodile River. The effective total storage capacity of 1 182 million m³ represents about 35 % of the natural MAR and 55 % of the present annual demand (including ecological requirements).
The Crocodile and Sabie-Sand Catchments have far less storage capacity than the Komati Catchment (after completion of dams currently under construction). It can be expected that in future the emphasis will be on managing the demand (and resource), rather than on resource development.

1.4.5. Management

In the past, management of the water resources within the Inkomati River basin was effected through a combination of Government Water Control Areas (GWCAs), Irrigation Districts, Water Boards and other relevant sections of the 1956 Water Act, with DWAF acting as the responsible authority. There were 9 GWCAs, 21 Irrigation Districts, 1 Water Board (Bushbuckridge Water Board) and 1 Water Authority (Komati Basin Water Authority) in existence in the Inkomati Basin upon promulgation of the National Water Act, 1998 (Act No. 36 of 1998). In terms of the National Water Act, it is now proposed to delegate water resource management to the water management area level. All irrigation districts and certain water boards are to be restructured as water user associations (WUAs).

SECTION 2:
THE INSTITUTIONAL ENVIRONMENT
2.1. DWAF REGIONAL OFFICE

The role of DWAF Head Office, as Executive Authority, is detailed in Chapters 3 and 4 above.

DWAF: Mpumalanga Regional Office will be restructured in response to the establishment of the Inkomati CMA and in conjunction with the phased delegation and assignment of functions to the CMA. The RO has commenced with a transformation process in response to the National Water Act and the Water Services Act in a general fashion, and through a series of workshops. It has given focused attention to its role and staffing after the establishment of the Inkomati CMA. The transformation challenges will be clarified as this process is undertaken. One of the urgent functions of the new Inkomati CMA would be to partner the RO in redefining its role, just as the latter would partner the CMA in phasing in control of its own Operational and Technical Support.

2.2. CMA GOVERNING BOARD

In terms of Section 81 of the National Water Act (36 of 1998), the members of a CMA Governing Board must be appointed by the Minister “who, in making such appointment, must do so with the object of achieving a balance among the interests of water users, potential water users, local and provincial government and environmental interest groups” (Section 81(1)). The Minister is required by the Act to establish an Advisory Committee which should recommend to the Minister “which organs of state and bodies representing different sectors and other interests” within the WMA should be represented, and “the number of persons which each of them should be invited to nominate” (Section 81(3)).

Following the Advisory Committee process, it was recommended that the Inkomati Board:

- comprise 14 members, representing the following sectors: Commercial Agriculture, Existing Agriculture by Historically Disadvantaged Individuals, Potential Agricultural Water Use by Historically Disadvantaged Individuals, Streamflow Reduction (Forestry), Industry, Mining and Power Generation, Tourism and Recreation, Conservation, Productive Use of Water by the Poor, Civil Society – Resource Protection

- that the Minister appoint a chairperson from amongst these 14 members
- that there be an additional 3 members as observers for the first year or two. These should comprise the CEO, an independent IWRM specialist, and DWAF Regional Office. It has been proposed, however, that the CEO and CFO remain as executive members of the board with the rest being non-executive members. The rationale for at least the CEO being a permanent member is based on ability to provide strategic direction for the CMA, clarify the business of the CMA, and assist the board in informed decision-making.
- To fulfil the need for strong skills representation, it has been proposed that a further 2 professionals be considered to strengthen the board in the areas of audit/finance and HR.

2.3. CATCHMENT MANAGEMENT COMMITTEES

In terms of Section 82(5) of the National Water Act, a “catchment management agency may establish committees, including an executive committee and consultative bodies, to perform any of its functions within a particular area or generally or to advise it, and must determine how they must function”.

This provision provides one avenue for the creation of a body on which all water user and interest groups in each of the three Catchments can be represented, and which, in turn, can serve as the vehicle for representation of each of the three Catchments on the CMA Governing Board.

In the interests of efficiency, the CMA governing board may form a number of technical sub-committees comprising board members and CMA staff (not necessarily formally established as catchment management committees) to focus and make recommendations on specific functions or geographical areas. The following board committees have been recommended for the initial functions of the board:

- Finance and Audit Committee
- HR and Remuneration Committee
The Inkomati Reference Group proposes the establishment of Catchment Management Committees (CMCs) for each of the three Catchments. These CMCs can only receive formal status from the CMA Governing Board once the latter has been established.

Catchment Steering Committees have been established for the Komati, Crocodile and Sabie-Sand Catchments. The Catchment Steering Committees could be transformed to have the same composition as proposed for the CMCs. Water user and interest groups have already organised themselves for this transformation in each of the three Catchments. These transformed Catchment Steering Committees, or “prototype” CMCs, would be in a position to respond to the Minister’s call for nomination of members of the CMA Governing Board once the final composition of the latter has been approved. Once the CMA Governing Board, composed of their representatives, has been established, the status of the “prototype” CMCs could be formalised as CMCs. There might be an information-sharing/consultative role for the larger Catchment Steering Committees (and even larger Catchment Forums) in the beginning phases of the establishment of the new CMA.

It has been proposed that the members of the each CMC elect 4 of their own number to form an Executive CMC. An Executive CMC may meet independently from the CMC concerned, in order to prepare for meetings of the CMC or, potentially, the Governing Board of the Inkomati CMA. One of the members of the Executive CMC concerned will be elected as Chairperson, and will be responsible for convening meetings of the Executive CMC and the full CMC. The office of the CEO of the Inkomati CMA could serve as the secretariat for each CMC and each Executive CMC.

The three CMCs will be constituted mainly for planning, monitoring and review purposes. Planning will include development of policies and coordination of the plans of a range of water user and interest groups.

2.4. OPERATIONAL AND TECHNICAL SUPPORT
Operational and Technical Support (O&TS) needs to be provided for the Inkomati Basin as a whole, as duplication of functions will be costly. In addition, O&TS needs to be provided within the framework of integrated water resources management. This can only be done if information is collected and analysed on a geographical basis, and linkages between a range of issues are formed. These issues include water use, water quality, hydrology, climatic conditions, land use, etc. Appropriate O&TS infrastructure is needed to allow for informed decision-making and the development of effective management techniques. Integrated planning requires sophisticated understanding of linkages between all practices and processes related to the quantity and quality of the water resource, as well as impact of changes in WRM regimes on socio-economic and biophysical processes. This does not mean that the work of a CMA should be driven purely by technical considerations, but rather that O&TS needs to underpin all the work of the CMA, i.e. provide support. Technical support is particularly important during the development and review of a Catchment Management Strategy.

O&TS is also important in terms of administrative and financial management support to the CMA Governing Board. The financial management role will grow as more functions are delegated or assigned to the CMA by DWAF.

Even the promotion of community participation in the protection, use, development, conservation, management and control of the water resources within the CMA’s area of jurisdiction, requires O&TS. In essence, the performance of any of the initial functions of the CMA requires the availability of O&TS. If O&TS is to be provided by outside agencies or DWAF, this needs to be integrated with the plans of the CMA Governing Board.

O&TS is essential to any of the functions associated with water resource management. The functions which might be delegated or assigned by the Minister to CMAs will become active once the Catchment Management Strategy has been developed. Should these functions be retained by DWAF, they would need to be employed in support of the CMA’s Catchment Management Strategy. This would require reorganisation of DWAF staff and work allocation, as DWAF Regional Offices are organised around the design and implementation of Catchment Management Strategies at WMA level to a limited extent only. The expertise exists, but there has previously not been a requirement for coordination of expertise in this fashion. It would be sensible to rather delegate or assign functions to the Inkomati CMA as soon as it has all the required
policies and procedures in place, and then to second DWAF staff to carry out those functions while more permanent O&TS arrangements are made.

2.4.1. Secondment of DWAF Staff

Staff secondment is provided for within the Labour Relations Act 66 of 1995. Secondment and transfer will have to be negotiated between the CMA and DWAF. In the case of secondment, DWAF would retain responsibility for remuneration and the administration of employment benefits of the affected staff. The seconded staff would, however, be incorporated into the line structure of the CMA and would have to operate within the policies and directives of the CMA. The usual practice with secondment of staff from one organisation to another is that the host organisation pays for the services of the seconded staff. Functional responsibilities to the two organisations are defined by negotiations between senior representatives of the organisations. In the case of secondment of staff from DWAF to the CMA, all of the above would apply, with the addition that salaries of seconded staff would be recovered from the water resource management charge (as prescribed by the Pricing Strategy).

Transfer of DWAF staff has to occur in terms of the DWAF Policy on Transfer of Personnel from the Department of Water Affairs and Forestry to other Institutions/Organisations (Transfer Policy: 01/10/1999). This policy was written with the transfer of water services works in mind, and relate more specifically to water management institutions created in terms of the Water Services Act, 1997 (Act No. 108 of 1997). However, it sets a potential precedent that will have to be considered when functions are assigned or delegated to the Inkomati CMA. One of the principles of this policy document reads as follows:

No transfer of functions shall take place without the possibility of transfer of personnel specifically linked to the function to be transferred.

This policy document also sets out preconditions for transfer that have to be met by DWAF and the new employer.

These principles are not onerous and are what would be required of the CMA in any event. The question of whether the CMA would be forced to employ existing
DWAF staff on a permanent basis when the functions described in the Act are
delegated or assigned is addressed specifically in the Draft National Policy on
Implementation of Catchment Management in South Africa, which was released
in February 2000. This draft policy builds on the earlier policy document and
includes the same principle as appears in the latter:

*DWAF employees performing functions to be transferred should be given
preference to be transferred to the CMA. Only after having exhausted the
existing staff compliment, may external recruitment take place.*

This draft policy includes a number of issues and procedures to be dealt with
during the process of secondment, as well as conditions of service provisions
relating to remuneration package, housing subsidy and departmental housing,
human resources development and bursaries, leave, pensions, etc.

The draft policy also includes the following statements regarding outsourcing
and the structuring of O&TS:

*Where these [functions] have been re-delegated or contracted to another
organisation, the CMA only requires a manager (with administrative support) to
coordinate, provide guidance, ensure compliance and audit these organisations.
If the skills must be developed within the CMA executive, this should preferably
be based on a flat management structure. It may be appropriate for two or more
neighbouring CMAs to consolidate and share certain personnel.*

*In practice, a combination of in-house capacity and coordination of other
organisations’ implementation is likely to be adopted by the governing board. A
smaller management team contracting and coordinating many catchment
management functions to other organisations is the preferred organisational
model for a CMA.*

The interpretation is that functions will be transferred from DWAF to the CMA
only for the positions below a first line of management. Such a first line of
management would consist of new functions created to manage water resources
in an integrated manner for a particular WMA. DWAF clearly has an interest in
promoting the appointment of its current staff into CMA O&TS positions,
particularly in cases where DWAF posts may become redundant after
assumption of delegated or assigned functions by CMAs.
2.4.2. O&TS Scenarios

A number of scenarios have been proposed for the provision of the O&TS function for the Inkomati CMA. These scenarios also reflect the financial viability of the CMA by depicting true costs for each management structure described.

**Scenario 1:**
DWAF (the Mpumalanga RO) retains full responsibility for O&TS. This scenario will apply until the CMA starts assuming responsibility for functions that can be delegated or assigned to it in terms of the National Water Act. Delegation or assignment of functions will take place in a phased manner, as the Inkomati CMA develops the appropriate capacity. As the CMA’s own O&TS arrangements develop, so the cost of O&TS by DWAF will decline. The Inkomati CMA will be entitled to only that portion of the WRM Charge that it needs to cover its own O&TS functions as assumed in terms of the National Water Act.

The current estimate of the cost of the DWAF Mpumalanga RO’S water resource management activities in the Inkomati Basin, excluding the cost of the Working for Water Programme is R4 971 804.

The following scenarios are based on the employment of staff by the CMA to undertake the full range of delegated/assigned WRM functions.

**Scenario 2:**
A limited number of people will be required to manage the water resources of the Inkomati Basin. Only 3 managers, at different levels of responsibility, will be required. The CEO will be supported by a Water Resources Manager and a Financial Manager.

The Water Resources Manager will be supported by 2 Pollution Control Officers, a Quantity Control Officer, and a CAD Operator. Two Assistants will be available to these staff. The Financial Manager will be assisted by a Communications Officer and an Administrative Clerk, both of whom will be able to draw on the services of an Assistant. The total cost of O&TS scenario 2 (excluding Working for Water) would amount to R 3 938 327.
**Scenario 3:**
This scenario is similar to O&TS scenario 2. The only difference is the addition of a Quality Manager and a Water Pollution Control Officer. The cost of O&TS scenario 3 (excluding Working for Water) would amount to **R 4 343 443** per year.

**Scenario 4:**
Scenario 4 is another variation on Scenario 2. Here, a Quantity Manager, an Information Systems and Technical Services Manager, an Engineer in Training and 2 Quantity Control Officers have been added to the additions of Scenario 3. This scenario approximates most closely the current structure of WRM functions in the DWAF: Mpumalanga RO. The cost of O&TS scenario 4 (excluding Working for Water) would amount to **R 5 000 024** per year.

**Scenario 5:**
This scenario was developed over several meetings of Catchment Steering Committees and the Inkomati CMA Reference Group. It is based on the most complete staff complement (to include a Personal Assistant to CEO, a Water Resources Manager, a Corporate Services Manager, a Communications & HR Manager, supported by an HR Officer). As with O&TS scenarios 2, 3 and 4, outsourcing arrangements will be pursued. The cost of O&TS scenario 5 (excluding Working for Water) would amount to **R 6 330 000** per year.

2.5. WATER USER AND INTEREST GROUPS

These will include Water User Associations (WUAs), Water Boards, and representation from various sectors (agriculture, forestry, mining, Energy, Industry, Environmental, Local Government, Traditional Leaders and Tourism).

All of these institutions within the WMA will act as delivery vehicles and, as such provide support to the CMA. Representation from Water User and Interest Groups will occur on the three CMCs of the Inkomati CMA. Proposals on exact representation (in numbers) have been made in this regard.

2.6. MANAGEMENT CAPACITY OF ROLE PLAYERS
A number of categories of expertise can be harnessed through membership of CMCs and the CMA Governing Board, through employment by the CMA (permanent or in consultant capacity), and through delegation of functions or establishment of cooperative relationships. The Inkomati Basin is fortunate to be host to a wealth of expertise in the following categories: engineering, legal, management of water distribution, management of ecosystems, integrated, water resource management (IWRM), well-organised water users.

SECTION 3:

CHALLENGES FACING THE INKOMATI CATCHMENT MANAGEMENT AGENCY
3.1. ACCESS TO WATER FOR EMERGING FARMERS

One of the most important issues to emerge from the status quo assessment done during the compilation of the Proposal is the issue of access to water by emerging farmers. Dissatisfaction is particularly strong in the Lower Komati Sub-catchment, where farmers have been caught between different government departments, historical agreements and new policy positions. This matter requires a coordinated response from government.

3.2. BUILDING OF NEW DAMS

There is frustration amongst a number of water users regarding DWAF’s blanket moratorium on the building of new dams in the Inkomati Basin. Such users view this moratorium as too inflexible and would like to see policy instruments to allow the responsible authority to find creative solutions that will allow for further development of water supply infrastructure.

3.3. CHOICE OF O&TS SCENARIO

Scenario 1 cannot be a permanent arrangement, as it will defeat the purpose behind existence of the CMA. Scenario 2, although most cost-effective, is based on a skeleton staff. There exists a risk of management capacity failure. The same risk could apply to scenarios 3 and 4. Scenario 5, on the other hand reflects the flip-side. It is the most costly scenario, and even though there would be a full complement of staff, the risk would be sustained financial viability.