

# **Treaty on the development and utilisation of the water resources of the Komati River Basin between the government of the Kingdom of Swaziland and the government of the Republic of South Africa signed on 13 March 1992**

## **PREAMBLE**

The Government of the Kingdom of Swaziland and the Government of the Republic of South Africa;

CONSCIOUS of the value of the scarce water resources in the Southern African region;

CONSCIOUS of the advantages of regional development and recognising that co-operation between them with regard to the establishment of mutual projects for the development of water resources of common interest, in particular the water resources of the Komati River Basin, will significantly contribute towards their economic prosperity and the welfare of their peoples in particular as well as the Southern African region in general; and

WISHING to maintain the tradition of good neighbourliness and peaceful co-operation between them acknowledged by the "Agreement between the Government of the Republic of South Africa and the Government of the Republic of Portugal in regard to Rivers of Mutual Interest and the Cunene River Scheme", 1964, to which the Kingdom of Swaziland acceded in 1967, and wishing to further promote the tradition of good neighbourliness and peaceful cooperation between them on the basis of the rules relating to the uses of the waters of international rivers, approved in 1966 at Helsinki by the 52nd Conference of the International Law Association;

HEREBY agree as follows:

## **Article 1 - Definitions**

In this Treaty, unless the context otherwise requires:

"Capital Cost" means the cost referred to in Articles 5 (1) and (2);

"High Assurance" means a 2% risk in any one year of only partial availability;

"JWC" means the Joint Water Commission established by a separate Treaty between the Parties;

"KOBWA" means the Komati Basin Water Authority as established by Article 7;

"Komati River Basin" means the drainage area of the Komati River, and all its tributaries, upstream of its confluence with the Crocodile River near Komatipoort in the Republic of South Africa;

"Low Assurance" means a total unavailability for up to 20% of the time on average in respect of 30% and a 2% risk in any one year of only partial availability in respect of the remaining 70%;

"Net Consumption" means the quantity of water abstracted or diverted from natural water courses within the Komati River Basin as well as water supplied directly or released on order from dams in the said basin, less any increase in the natural streamflow within the said basin resulting from return seepage or flow of such abstraction, diversion, supply or release which is assessed by the JWC to be practically and beneficially utilisable by downstream consumers within the said basin;

"Operation and Maintenance Cost" means the cost referred to in Articles 6 (1) and (2);

"Parties" means the Government of the Kingdom of Swaziland and the Government of the Republic of South Africa;

"Project" means the water storage project comprising the Driekoppies Dam on the Lomati River and the Maguga Dam on the Komati River together with the ancillary works as more fully set out in Article 4;

"Reservoir Area" means the area at a dam designated by the JWC from time to time for the purpose of, inter alia, inundation, housing and appurtenant facilities;

"South Africa" means the Government of the Republic of South Africa;

"Swaziland" means the Government of the Kingdom of Swaziland;

"*Vis Major*" means:

(a) any overwhelming occurrence of nature, including extreme drought or flood, not planned for;

(b) any of the following occurrences initiated by human agency: war, invasion, blockade, foreign hostile act, civil war, rebellion, revolution, insurrection or sabotage;

(c) strikes or other similar stoppages of work by employees which are not the result of the unreasonable conduct of a Party or KOBWA; or

(d) any other event beyond the control of a Party or KOBWA if the Parties agree that such event constitutes *Vis Major*.

## Article 2 - Purpose of the Treaty

The purpose of this Treaty is to provide in principle for the development and utilization of the water resources of the Komati River Basin and in particular for the design, construction, operation and maintenance of the Project and the establishment of KOBWA, as well as for all matters related thereto.

## Article 3 - Komati River Basin Development Plan

1. The Parties hereby agree in principle to develop the water resources of the Komati River Basin by means of a comprehensive development plan which when fully implemented will, together with existing dams, secure a total net storage capacity of between 1 200 and 1 900 cubic hectometres within the said basin and afford the Parties concomitant control of the run-off of the said basin.

2. The implementation of the development plan shall entail the construction of the dams and related works on the Komati and Lomati Rivers referred to in Article 4 and the phased construction of the dams and related works at the sites referred to in sub-article 6 of this Article, the proposed diversion of the Theespruit into the proposed Boekenhoutrand Dam, or any other dams, gauging weirs or related works as agreed to by the Parties.

3. Subject to the provisions of Article 4 (3) (b), as a first phase towards the implementation of the development plan, the Parties hereby agree jointly to design, construct, operate and maintain the Project.

4. The implementation of any subsequent phase of the development plan shall be subject to further study and recommendation by the JWC and agreement between the Parties.

5. The Parties recognise the right of the Republic of Mozambique to a reasonable and equitable share in the use of the waters of the Inkomati River Basin of which the Komati River Basin is an integral part. The Parties agree to enter into negotiations with each other when such share is claimed by the Government of the Republic of Mozambique in order to determine:

(a) the contribution of water to the Inkomati River Basin from the Komati River Basin;

(b) the possible allocation of water from the Project to the Republic of Mozambique; and

(c) the need to implement any subsequent phase of the development plan, and further also agree subsequently to enter into joint negotiations with the Government of the Republic of Mozambique in order to establish and make available to the Republic of Mozambique its reasonable and equitable share in the use of the waters of the said basin.

6. The Parties shall use their best endeavours to discourage development within the Reservoir Areas of the following dam sites as shown in Annex 1 hereto which, subject to the provisions of sub-article 4, are agreed upon for the implementation of further phases of the development plan:

(a) in the Kingdom of Swaziland on the Komati River at Silingane and on the Lomati River at Ngonini; and

(b) in the Republic of South Africa on the Komati River at Boekenhoutrand and Tonga and on the Lomati River at Vlakbult.

7. The Parties shall furnish each other through the JWC with particulars of any development undertaken or approved by government and affecting the Reservoir Areas of the dams in their respective territories referred to in sub-article 2, where possible prior to such development being undertaken, but in any case as soon as it has come to the knowledge of the Party concerned.

8. On the implementation of any further phase of the development plan involving any of the sites referred to in sub-article 6, the cost involved in making the site available for such implementation shall form part of the apportionable cost of such phase to the extent agreed to by the Parties at that time.

#### Article 4 - Implementation of the Project

1. The Project shall comprise:

(a) the Driekoppies Dam on the Lomati River in the Republic of South Africa and inundating part of the Kingdom of Swaziland;

(b) the Maguga Dam on the Komati River in the Kingdom of Swaziland, as shown in Annex 1 hereto; and

(c) such gauging weirs and other measuring devices as in the opinion of the JWC are necessary for the proper operation of the Driekoppies and Maguga Dams and for the proper determination of run-off, return seepage or flow in and water consumption from the Komati River Basin.

2. Subject to changes approved by the JWC:

(a) the Driekoppies Dam will be constructed with a full supply level at 328, 5 metres above sea level, a gross storage capacity of 251 cubic hectometres and covering an area at full supply level of 1 870 hectares;

(b) the Maguga Dam will be constructed with a full supply level at 626, 0 metres above sea level, a gross storage capacity of 332 cubic hectometres and covering an area at full supply level of 1 042 hectares; and

(c) the Reservoir Area shall comprise 1 550 hectares at Maguga Dam and 2 500 hectares at Driekoppies Dam, of which 380 hectares will be situated in the Kingdom of Swaziland.

3. The Project shall be implemented in two sub-phases of which:

(a) sub-phase 1A shall comprise the Driekoppies Dam and the appurtenant ancillary works contemplated by sub-article 1 (c), the construction of which shall commence within two years from the date of coming into force of this Treaty; and

(b) sub-phase 1B shall comprise the Maguga Dam and the appurtenant ancillary works contemplated by sub-article 1 (c). Swaziland shall within two years from the date of coming into force of this Treaty commit itself to the implementation of sub-phase 1B, the construction of which shall commence within three years from the date of such commitment, failing which the Maguga Dam shall cease to form part of the Project and the site thereof shall be added to the dam sites referred to in Article 3 (6) (a).

#### Article 5 - Apportionment of the Capital Cost of the Project

1. Subject to the further provisions of this Article, all costs incurred by KOBWA for the design and construction of the Project including the cost of financing shall be Capital Cost.

2. Subject to agreement by the JWC, any cost incurred by a Party in connection with the design and construction of the Project, shall also form part of the Capital Cost.

3.

(a) The Parties shall each in accordance with a relocation plan approved by the JWC, make available to KOBWA sufficient land in their respective territories, free of all third party interests, as required by KOBWA for the construction, operation and maintenance of the Project.

(b) Subject to the provisions of paragraph (c), costs incurred by a Party in making land referred to in paragraph (a) available shall, to an amount not exceeding the value of such land as determined by the JWC, also form part of the Capital Cost or, in the event that such costs are less than the value of such land so determined, the value of such land shall also form part of the Capital Cost.

(c) South Africa shall as part of its cost for the construction of sub-phase 1A of the Project, compensate Swaziland on a basis to be agreed to by the Parties, for that part of the Kingdom of Swaziland forming part of the Reservoir Area of the Driekoppies Dam.

4.

(a) The Parties shall each in accordance with a relocation plan approved by the JWC, be responsible for the physical relocation of all persons resident on or having a right to use land within their respective territories which is to be made available in accordance with sub-article 3 (a).

(b) Costs incurred by a Party in connection with such relocation shall, after approval by the JWC, also form part of the Capital Cost.

5.

(a) The Parties shall each in accordance with a relocation plan approved by the JWC, be responsible for the relocation of roads, power lines, telephone lines and other services and of graves in their respective territories, necessitated as a direct result of having to make available land referred to in sub-article 3 (a).

(b) Costs incurred by a Party in connection with such relocation shall, after approval by the JWC, also form part of the Capital Cost.

6. The Capital Cost shall:

(a) in respect of sub-phase 1A of the Project be for the account of South Africa;

(b) in respect of sub-phase 1B of the Project be divided between the Parties in accordance with Annex 2 hereto; and

(c) in respect of any gauging weir or other measuring device constructed as part of the Project in terms of Article 4 (1) (c) and which is not included as an appurtenant ancillary work in either sub-phase 1A or sub-phase 1B be divided between the Parties in accordance with Section 2.3 of Annex 2:

Provided that in the event of an agreed change in the size of any such dam, a change in the water allocations stated in Article 12 (2) or the areas of afforestation stated in Article 12 (8), the Parties shall redetermine the apportionment of Capital Cost in accordance with the principles set out in Annex 2.

7. Capital Cost shall be reimbursed in the manner prescribed in Article 11.

#### Article 6 - Apportionment of the Operation And Maintenance Cost of the Project

1. All costs incurred by KOBWA for the operation and maintenance of the Project shall be the Operation and Maintenance Cost.

2. Subject to agreement by the JWC, any cost incurred by a Party in connection with the operation and maintenance of the Project, shall also form part of the Operation and Maintenance Cost.

3. The Operation and Maintenance Cost shall be apportioned between the Parties on the basis set out in Article 5 (6) in respect of the Capital Cost.

4. Operation and Maintenance Cost shall be reimbursed in the manner prescribed in Article 11.

#### Article 7 - Establishment of Kobwa

1. The Parties hereby establish KOBWA which shall become operative on a date determined by the JWC. The location of the headquarters of KOBWA shall be as determined by the JWC from time to time.

2. KOBWA shall possess legal personality in the territory of each Party.

3. The object of KOBWA shall be the design, construction, operation and maintenance of the Project in accordance with the provisions of this Treaty as directed by the JWC from time to time.

4. KOBWA shall in its own name perform all such acts as are necessary for or incidental to the attainment and realisation of its object, the exercise of its powers and the execution of its functions in terms of this Treaty.

#### Article 8 - Structure and Functioning of Kobwa

1. KOBWA shall be managed and controlled by a Board of Directors.

2. The Board of Directors shall consist of:

(a) such number of members, but not less than two, as the JWC determines from time to time and who shall not be employees of KOBWA, of whom an equal number shall be appointed by each Party within one month of the date of KOBWA becoming operative as provided for in Article 7 (1) for such periods as each Party may determine, who shall further be persons with such qualifications and

expertise as shall enable them to contribute to the effective design, construction, operation or maintenance of the Project; and

(b) the Chief Executive Officer, appointed in terms of Article 9, who shall be ex officio a member.

3. Any vacancy occurring in respect of the members referred to in sub-article 2 (a), shall be filled by the Party concerned within one month of the occurrence of such vacancy.

4. The first meeting of the Board of Directors shall be convened by the JWC as soon as practicable after the date of KOBWA becoming operative as provided for in Article 7 (1).

5. All subsequent meetings of the Board of Directors shall take place as determined by the members: Provided that the Chief Executive Officer may, when he considers it necessary, convene a meeting of the Board of Directors and shall, if requested to do so by not less than half of the members appointed in terms of sub-article 2 (a), convene a meeting within fourteen days of such request.

6. The members of the Board of Directors shall elect one of their number, appointed in terms of sub-article 2 (a), as Chairman of the Board of Directors for a period of two years and such a member may on the expiry of his term of office be re-elected subject to the approval of the JWC.

7. In the absence of the Chairman at any meeting of the Board of Directors, the members present shall elect one of their number who shall not be the Chief Executive Officer, to act as Chairman at that meeting.

8. No decision of the Board of Directors shall be binding unless taken at a meeting attended by a quorum consisting of three members and which is maintained throughout the meeting: Provided that at least one of the members appointed by each Party in terms of sub-article 2 (a) is present throughout the meeting.

9. All decisions of the Board of Directors shall as far as possible be taken on the basis of consensus. If no consensus can be reached, the matter before the Board of Directors shall be decided by a simple majority vote of members present and voting: Provided that the Chief Executive Officer shall have no voting power.

10. Any matter on which the Board of Directors has taken a vote as provided for in subarticle 9 and which resulted in an equality of votes, shall be referred to the JWC for a decision.

11. The Board of Directors may, on such conditions as it determines, delegate any of its functions or powers to the Chief Executive Officer or a committee appointed by the Board of Directors.

#### Article 9 - Powers and Functions of Kobwa

1. Pursuant to the provisions of Article 7 and subject to sub-article 3 of this Article, KOBWA shall in particular have the power to:

(a) employ and dismiss staff and determine their conditions of service;

- (b) appoint consultants;
- (c) award contracts;
- (d) raise money by way of loans and arrange overdrafts from its bankers;
- (e) purchase, lease or otherwise acquire land or other property or any rights in such land or other property and exchange, let, hypothecate, sell or in any other manner dispose of such land or other property or any rights in such land or other property; and
- (f) institute or defend any legal proceedings.

2. Pursuant to the provisions of Article 7 and subject to sub-article 3 of this Article, KOBWA shall in particular have the function to:

- (a) on such terms and conditions as KOBWA may determine, appoint a Chief Executive Officer who shall be responsible to the Board of Directors for the conduct of the day to day business of KOBWA;
- (b) establish a comprehensive accounting system which shall be subject to periodic review;
- (c) prepare budgets, cost plans and funding plans as required by the JWC and cash flow forecasts as provided for in Article 11;
- (d) on the basis of normal commercial considerations and unless otherwise directed by the JWC, insure against risks of all loss, damage and liability from whatever cause, which may arise in the course of the design, construction, operation and maintenance of the Project;
- (e) appoint a firm of chartered accountants as auditors;
- (f) formulate operating rules and conditions relating to, inter alia, maximum and minimum water abstraction rates by the Parties in the Komati River Basin, storage and use during subsequent years of unutilised water from the annual entitlement referred to in Article 12 (2), releases from storage of water surplus to anticipated storage requirements for hydro-electric power generation only in terms of Article 14 (1) (a) and restrictions on water allocations during periods of water shortages in the said basin;
- (g) prepare standing orders relating to the conduct of its meetings and financial regulations governing but not limited to administration, financial management, property control and procurement.

3. Subject to sub-article 4, the exercise by KOBWA of the following powers and functions shall be subject to the prior approval of the JWC:

- (a) the detailed design of the works comprising the Project as well as tender procedures and documents;
- (b) the appointment of consultants;
- (c) the award of contracts;



- (d) the staff establishment of KOBWA, the designation of certain posts on the staff establishment as senior posts and the conditions of service of all staff;
- (e) the appointment of the Chief Executive Officer and persons to senior posts and the dismissal of all such persons;
- (f) financing arrangements and loan agreements;
- (g) implementation plans including key events;
- (h) all budgets, cost plans, funding plans and cash flow forecasts;
- (i) operating rules and maintenance plans;
- (j) the acquisition or disposal of any property referred to in sub-article 1 (e);
- (k) the instituting and defending of any legal proceedings;
- (l) the appointment of auditors; and (m) any other matter determined by the JWC from time to time.

4. The JWC may, to the extent and subject to such conditions as it may determine, exempt KOBWA from the requirement to obtain its prior approval in respect of any or all of the matters referred to in sub-article 3.

#### Article 10 - Financial Administration of Kobwa

1. The funds of KOBWA shall consist of:

- (a) loans raised including overdraft facilities;
- (b) moneys received from the Parties by way of their respective contributions to the Capital Cost and the Operation and Maintenance Cost of the Project;
- (c) grants or contributions from any source;
- (d) interest accruing on bank deposits; and
- (e) such other moneys as the Parties may determine.

2. KOBWA shall utilise its funds solely for its object as set out in Article 7 (3).

3. All funds not immediately required for its operations shall be placed on interest bearing bank deposit.

4. The financial year of KOBWA shall be for a period of twelve months commencing on the first day of April of any given year and ending on the last day of March of the following year, both days inclusive.

5. The books and accounts of KOBWA shall be audited annually or as may be required by the JWC.

6. Within three months after receipt of a report of the audit of its books and accounts, KOBWA shall submit to the JWC eight copies of a report on its activities during the financial year or the other period to which the audit relates, together with the duly .....

#### Article 11 - Procedure for the Reimbursement of Capital Cost as well as Operation and Maintenance Cost to or by Kobwa

1. Unless otherwise determined by the JWC, KOBWA shall, for reimbursement by the Parties of all Capital Cost as well as all Operation and Maintenance Cost incurred by KOBWA, prepare at least four months before the beginning of each financial year:

(a) a long-term cash flow forecast covering a period of five financial years, which shall include an analysis of such cash flow on an annual basis; and

(b) a short-term cash flow forecast for the ensuing financial year, which shall include an analysis of such cash flow on a monthly basis.

2. KOBWA shall, at such intervals as are determined by the JWC or whenever necessitated by circumstances, prepare reconciliation statements with regard to the long-term and short-term cash flow forecasts and shall update such forecasts accordingly.

3.

(a) All cash flow forecasts to be prepared in terms of sub-article 1 shall reflect all funds available to KOBWA from whatever source and shall distinguish between cost incurred as Capital Cost and cost incurred as Operation and Maintenance Cost.

(b) In the event of any cash flow forecast reflecting a cash shortfall, such shortfall shall be shown as payments due by the Parties in the proportions contemplated respectively in Articles 5 (6) and 6 (3).

4. KOBWA shall as soon as possible after approval by the JWC of a short-term cash flow forecast or, as the case may be, an updated short-term cash flow forecast, submit such forecast to the respective officers designated by the Parties as responsible for making all payments to KOBWA. Each Party shall pay the amounts due by it not later than the dates shown on such forecast.

5.

(a) Subject to the provisions of Article 5 (3) (c), a Party may at any time by notice in writing to KOBWA, claim reimbursement for any amount actually expended by that Party in compliance with Article 5 (3) (a) which, in terms of Article 5 (3) (b), forms part of the Capital Cost. Such reimbursement shall be made by KOBWA within four calendar months from the date of such notice.

(b) The difference between the value of land made available by a Party in terms of Article 5 (3) (a) and the aggregate of the amounts claimed by that Party in terms of paragraph (a) of

this sub-article, if any, shall be set off by KOBWA against any amount due and payable by that Party to KOBWA in terms of this Article.

6. A Party may at anytime by notice in writing to KOBWA, claim reimbursement for any amount actually expended by that Party in terms of Article 5 (2), 5 (4) (a), 5 (5) (a) or 6 (2) and which, in terms of Article 5 (2), 5 (4) (b), 5 (5) (b) or 6 (2) forms part of the Capital Cost or the Operation and Maintenance Cost, as the case may be. Such reimbursement shall be made by KOBWA within four calendar months from the date of such notice.

## Article 12 - Allocation of Water

1. Allocations of water to the Parties set out in the following sub-articles have been derived as set out in Annex 3 hereto.

2. Subject to the other provisions of this Article the Parties shall, after completion of the Project comprising sub-phases 1A and 1B and from the date to be determined by the JWC, be entitled annually to the following Net Consumption:

(a) Swaziland:

15.1 cubic hectometres at High Assurance

260.2 cubic hectometres at Low Assurance; and

(b) South Africa:

157.8 cubic hectometres at High Assurance

381.0 cubic hectometres at Low Assurance.

3.

(a) The quantity of water to which a Party is entitled in terms of sub-article 2 of this Article, shall be available only in accordance with the operating rules and conditions referred to in Article 9 (2) (f).

(b) Subject to the operating rules and conditions referred to in Article 9 (2) (f), water to which a Party is entitled in any one year in terms of sub-article 2 of this Article, which has not been utilised during that year, may be retained in storage in the Project.

4. Subject to the approval of the JWC, a Party may convert its allocation from one category of assurance to another. For the purpose of the Project, the multiplication factor for converting water at Low Assurance to water at High Assurance shall be 0.794, unless otherwise determined by the JWC.

5. The Parties hereby record and accept that in addition to the water allocations set out in sub-article 2:

(a) 42.0 cubic hectometres per year at Low Assurance have been set aside for water transmission losses; and

(b) 22.7 cubic hectometres per year on average at High Assurance have been set aside for water evaporation losses from Nooitgedacht, Vygeboom, Maguga, Sand River and Driekoppies Dams only.

6. The water allocations set out in sub-article 2 shall be adjusted pro rata with due regard to the different assurances of the respective water allocations, if upon review by the JWC of the losses referred to in sub-article 5, the JWC considers such adjustment to be necessary.

7. Should the hydro logical data on which the water allocations as set out in sub-article 2 are based be subsequently revised by the JWC, the water allocations shall be adjusted pro rata with due regard to the different assurances of the respective water allocations.

8. In addition to the water allocations set out in sub-article 2, the Parties shall be entitled to the following maximum areas of afforestation in the Komati River Basin:

(a) Swaziland 32 442 hectares (estimated mean gross annual water use 46 cubic hectometres);  
and

(b) South Africa 90 233 hectares (estimated mean gross annual water use 99 cubic hectometres).

9. The areas of afforestation set out in sub-article 8 may be increased or decreased by each Party: Provided that a corresponding adjustment as determined by the JWC is made to the water allocations set out in sub-article 2.

10. In order to promote the best utilisation of the Project each Party shall, in the form and at the intervals determined by the JWC from time to time, submit to the JWC for approval particulars regarding the extent and location of existing and intended abstractions of water from the Komati River Basin.

11.

(a) The Parties record and accept that 134.5 cubic hectometres of water per year at High Assurance and 23.8 cubic hectometres of water per year at Low Assurance which have been included in the water allocation to South Africa in sub-article 2, will be supplied from the portion of the Komati River Basin upstream of and including the Vygeboom Dam and the Poponyane River and Gladdespruit diversions into the Vygeboom Dam, which present system is only capable of supplying 128.7 cubic hectometres of water per year at High Assurance and 23.8 cubic hectometres of water per year at Low Assurance.

(b) Pursuant to the allocation referred to in paragraph (a), South Africa may at any time implement measures to secure the said allocated quantities of water from the said portion of the basin without diminishing the availability of water at both High Assurance and Low Assurance from the Project for use other than for the generation of hydro-electric power only, except under circumstances where such generation is undertaken with water assigned by a Party for such purpose in terms of Article 14 (1) (a) and South Africa undertakes to submit to the JWC for approval any such proposed measures.

12. No Party shall allow within its territory the construction of any water storage work in the Komati River Basin with a capacity in excess of 250 000 cubic metres without the prior approval of the JWC.

13. In the event that sub-phase 1B is not implemented as provided for in Article 4 (3) (b), the entitlement of the Parties to water as set out in this Article, shall be renegotiated without prejudicially affecting existing or committed projects in their respective territories.

14. After completion of any sub-phase and prior to the completion of the other subphase of the Project, the JWC may, on such conditions as it may determine, permit the use by any Party of water secured by the first completed sub-phase, in anticipation of the provisions of sub-article 2 becoming effective.

#### Article 13 - Social and Environmental Considerations

The Parties agree to take all reasonable measures to ensure that the design, construction, operation and maintenance of the Project are compatible with the protection of the existing quality of the environment and, in particular, shall pay due regard to the maintenance of the welfare of persons and communities immediately affected by the Project.

#### Article 14 - General Rights and Obligations of the Parties Relating to the Project

1. A Party may, subject to approval by the JWC and the conditions imposed by it, at its own expense and in consultation with KOBWA:

(a) construct and operate within its territory, hydro-electric power complexes at any dam in the Komati River Basin: Provided that no water shall be released from storage for the purpose of hydro-electric power generation only, unless such Party has assigned water from its allocation in terms of Article 12 for this purpose, or KOBWA has approved the release from storage of water in terms of the operating rules referred to in Article 9 (2) (f);

(b) utilise within its own territory. Reservoir Areas or other sites under the control of KOBWA for the promotion of tourism or for the development of the recreational or any commercial potential of such area or site.

2. Each Party shall, where necessary, enact appropriate legislation to enable it to give effect to the terms of this Treaty and shall ensure that any such legislation be enacted in time to allow for the effective design, construction, operation and maintenance of the Project.

3. Each Party shall, in respect of its territory, cause KOBWA or the other Party as the case may be, to be granted all powers, authorisations, exemptions and rights including access rights, necessary for the design, construction, operation and maintenance of the Project.

4.

(a) Each Party shall, subject to the normal requirements of national legislation, ensure the granting of visas and other travel documents to personnel of KOBWA or the other Party, as the case may be, engaged in the design, construction, operation and maintenance of the Project and shall ensure the necessary freedom of access to the location of the works forming part of the Project to such personnel.

(b) The provisions of paragraph (a) shall not be construed so as to affect, in any way, the sovereign right of a Party to prohibit the entry into or call for the removal from its territory of any person.

(c) While the Parties acknowledge and accept that any person who may at any time be engaged within their respective territories for a legitimate purpose in connection with the implementation of this Treaty is subject to their respective civil and criminal laws, the Parties hereby undertake to forthwith advise each other through the diplomatic channel, of any legal proceedings they respectively propose to institute against any such person.

5. Each Party shall in its own territory be responsible for the payment of all dues and fees for the utilisation of any naturally occurring unprocessed rock, sand, clay and soil found suitable and economical by KOBWA for use in the construction of the Project.

6. The Parties shall use their best endeavours to:

(a) minimise waste and non-beneficial use of water from the Komati River Basin within their respective territories; and

(b) ensure that the necessary steps are taken within their respective territories to prevent water pollution and to minimise soil erosion within the said basin.

7. Each Party shall be responsible for the maintenance at its own cost of any fencing or other means of demarcating any Reservoir Area or part thereof within its territory, except that fencing which has been designated by the JWC as necessary for security purposes, shall be maintained by KOBWA at its own cost.

8. Each Party shall within its own territory and at its own cost afford KOBWA all such assistance as KOBWA may from time to time request for the security of the Project and the safety of its personnel.

9. Notwithstanding anything contained in this Treaty:

(a) no Party shall be entitled to any compensation as a return on or depreciation of any asset in respect of which an amount has been included in the Capital Cost; and

(b) the making available by a Party of any land to KOBWA in terms of this Treaty or the incurring of any cost which in terms of this Treaty may be included in the Capital Cost or Operation and Maintenance Cost of the Project shall not, only by virtue thereof, confer any right of ownership or equity.

10. Subject to the provisions of this Treaty, the Kingdom of Swaziland and the Republic of South Africa shall retain their sovereignty over the land in their respective territories which they have made available to KOBWA to form part of the Reservoir Areas of the Project.

#### Article 15 - Procedure in Case of *Vis Major*

In the case of any substantial impairment of the implementation of the provisions of this Treaty caused by *Vis Major*, KOBWA, the JWC and the Parties shall at their various levels, jointly and severally, immediately take all necessary measures permitted by circumstances to mitigate such impairment whereafter the Parties shall agree on further action.

#### Article 16 - Settlement of Disputes

1. Any dispute concerning the interpretation or application of this Treaty shall at the request of either Party be resolved through negotiations between the Parties.
2. In the event of the Parties failing to settle a dispute within three months from the date of a request referred to in sub-article 1 or within such other period as may be agreed upon by the Parties, either Party may submit the dispute to arbitration on giving written notice of its intention to the other Party.
3. Arbitration shall be by a tribunal composed of an arbitrator appointed by one Party, an arbitrator appointed by the other Party and an arbitrator appointed jointly by the two arbitrators, who shall be chairman.
4. If after a period of three months from the delivery to a Party of the notice referred to in sub-article 2, either Party has failed to appoint its arbitrator to the Arbitral tribunal or the arbitrators concerned have failed to agree on the arbitrator to be appointed by them, either Party may request the Secretary General of the United Nations to appoint such arbitrator or arbitrators.
5. The Arbitral tribunal shall adopt its own rules of procedure.
6. The decision of a majority of the arbitrators of the Arbitral tribunal shall be final and binding on the Parties.
7. Each Party shall be responsible for the remuneration of the arbitrator appointed by or for it and for all other costs connected with such appointment and all costs incurred in the preparation and presentation of its case to the Arbitral tribunal. All other costs incurred in connection with the arbitration proceedings shall be shared equally between the Parties.

...

## [Annex 1.](#)

Omitted.

## [Annex 2. Apportionment of capital cost \(Article 5 refers\)](#)

### **1. General principles**

The general principles adopted for the apportionment of the Capital Cost of the Project are as follows:

The Basic Cost (B) is established as the sum of the cost of dams at Driekoppies and Maguga which are of such sizes as only to firm up, to the levels of assurance as defined in Article 1, the water supply to consumers (irrigation, domestic, livestock, municipal, industrial and mining use) downstream of Vygeboom Dam on the Komati River and along the Lomati River as they existed in 1981 but under conditions of afforestation as it existed in 1978.

The Basic Cost is apportioned to Swaziland and South Africa in proportion to the mean basic water shortages experienced by the said consumers in each of the respective states in 1981 as set out in Section B.1 of Annex 3.

The Total Cost (T) is established as the sum of the cost of dams at Driekoppies (TD) and Maguga (TM) as constructed in the implementation of the Project.

The Basic Cost shall be fixed as 0.599 times the Total Cost.

The Incremental Cost (I) is established as the difference between the Total Cost and the Basic Cost. Hence the Incremental Cost shall be fixed as 0.401 times the Total Cost.

The Incremental Cost is apportioned to Swaziland and South Africa in proportion to the incremental water allocations expressed as equivalent High Assurance water as set out in Section B.2 of Annex 3.

## 2. Cost apportionment formulae

In the following formulae the following symbols are used in addition to those for costs given above:

Incremental water allocation - South Africa	$i_r$
(Section B.2 of Annex 3)	Swaziland $i_s$
	Total $i_t$

### 2.1 SWAZILAND

Swaziland's share of costs will be the sum of the Basic Cost Share and Incremental Cost Share as expressed below:

$$\begin{aligned} \text{Basic Cost Share} &= B \times 0.11 = 0.599 \times T \times 0.11 \\ &= 0.06589 \times T \end{aligned}$$

$$\text{Incremental Cost Share} = I \times \frac{i_s}{i_t} = 0.401 \times T \times \frac{i_s}{i_t}$$

The factor  $S_s$  defined as Swaziland's share of the Total Cost expressed as a proportion of the cost of Maguga Dam is derived as follows:

$$S_s = \frac{T}{T_M} \times (0.06589 + 0.401 \times \frac{i_s}{i_t})$$

Under this formula Swaziland's share of the Capital Cost is equivalent to  $S_s$  times the cost of sub-phase 1B.

### 2.2 SOUTH AFRICA

South Africa's share of the costs will be the sum of the Basic Cost Share and Incremental Cost Share as expressed below:



$$\begin{aligned}\text{Basic Cost Share} \quad B \times 0.89 &= 0.599 \quad \times T \times 0.89 \\ &= 0.53311 \times T\end{aligned}$$

Incremental Cost Share

$$I \times \frac{i_r}{i_t} = 0.401 \quad \times T \times \frac{i_r}{i_t}$$

Under this formula South Africa's share of the Capital Cost is equivalent to the full cost of sub-phase 1A of the Project plus (1-S<sub>s</sub>) times the cost of sub-phase 1B.

## 2.3 ANCILLARY WORKS

In the event that any gauging weir or other measuring device is constructed as part of the Project in terms of Article 4 (l) (c) but which is not or has not been included as an appurtenant ancillary work in either sub-phase 1A or sub-phase 1B, the respective Capital Cost shares of the Parties shall be as follows:

$$\begin{aligned}\text{Swaziland} \quad &(0.06589 + 0.401 \times \frac{i_s}{i_t}) \\ \text{South Africa} \quad &(0.53311 + 0.401 \times \frac{i_r}{i_t})\end{aligned}$$

## 3. Cost apportionment determination

For the purpose of cost apportionment, KOBWA shall prepare revised estimates of Total Cost (comprising separate estimates of the total cost of the Driekoppies and Maguga Dams) at least four months before the beginning of each financial year in accordance with the principles set out in Section 4 below.

Subject to the approval of the JWC, such estimates shall be used to determine the proportions referred to in Articles 5 (6) (b), 5 (6) (c) and 6 (3) in accordance with "the formulae set out in Section 2 above. Such proportions shall be used during the financial year in question to determine the payments due by the Parties to KOBWA in terms of Article 11 (3) (b).

Provided that from a date to be determined by the JWC following the completion of both Driekoppies and Maguga Dams, such proportions shall be set equal to those determined for the financial year in which such date falls and no further revision to Total Cost shall be made.

## 4. Principles for preparation of estimates of total cost

Estimates of the Total Cost shall be prepared in accordance with the following principles:

The Total Cost shall include all elements of cost identified as part of the Capital Cost in Article 5 except that the cost of financing shall be excluded.

All costs shall be expressed in South African Rand. If it becomes necessary to convert costs incurred in Swaziland Emalangenis to South African Rand at a rate other than parity, such cost shall be converted at a rate equal to the average of the means of the buying and selling spot

rates quoted by The Standard Bank of South Africa and First National Bank for that amount at 11:00 two business days prior to transaction date.

Where costs are incurred in currencies other than South African Rand or Swaziland Emalangeni such costs shall be converted at the exchange rate applicable to the transaction.

All costs shall be adjusted to constant prices at the levels prevailing at a date approved by the JWC, utilising the cost escalation formula included in any applicable contract documents or, where no such formula is specified, by reference to an appropriate weighted selection from the following Price Indices for the Civil Engineering Industry published by the Central Statistical Service of the Republic of South Africa referenced as follows:

1. Labour index - weighted average
- 2.3 Civil engineering plant index (1981)
- 3.2 Civil engineering materials (1981)
- 4.1 Fuel index - diesel - coast

as approved by the JWC.

## 5. Worked example

The following worked example is provided for illustrative purposes only and is based on cost estimates prepared at September 1984 prices and on incremental water allocations given in Section B.2 of Annex 3:

Total Cost of Driekoppies Dam  $T_D = R\ 104.7$  million  
 Total Cost of Maguga Dam  $T_M = R\ 138.3$  million  
 Hence: Total Cost  $T = R\ 243.0$  million  
 cubic hectometres per year

South Africa: incremental water allocation  $i_r = 111.0$   
 Swaziland: incremental water allocation  $i_s = 72.6$   
 Hence: Total incremental water allocation  $i_t = 183.6$

Hence Swaziland's share of the Total Cost expressed as proportion of the cost of Maguga Dam is given by:

$$\begin{aligned}
 S_s &= \frac{T}{T_M} \times (0.06589 + 0.401 \times \frac{i_s}{i_t}) \\
 &= \frac{243.0}{138.3} \times (0.06589 + 0.401 \times \frac{72.6}{183.6}) \\
 &= 243.0 (0.06589 + 0.15857) \\
 &= 243.0 (138.3 \times 122446) \\
 &= 0.39438
 \end{aligned}$$

Accordingly South Africa's share of the Total Cost of Maguga Dam ( $1 - S_s$ ) is 0.60562.

## Annex 3. Water allocations and water data for apportionment of capital cost (article 12 refers)

### A. WATER ALLOCATIONS

#### A.1 HIGH ASSURANCE

The total allocations of water (in cubic hectometres per year - hm<sup>3</sup>/a) at High Assurance stated in Article 12 (2) have been derived as follows:

EXISTING (1981) PROVISION FOR FUTURE TOTAL			
South Africa:			
Upstream of Vygeboom Dam	134.5 <sup>66</sup>	0.0	134.5
Other	5.5 <sup>67</sup>	17.8	23.3
Sub-total South Africa	140.0	17.8	157.8
Swaziland:	10.9 <sup>67</sup>	4.2	15.1
Total	150.9	22.0	172.9

[<sup>66</sup>As stated in Article 12 (11) (a).]

[<sup>67</sup>Excludes mean evaporation losses from Nooitgedacht and Vygeboom Dams (7.5 hm<sup>3</sup>/a) and Sand River Dam (4.0 hm<sup>3</sup>/a). Together with Maguga Dam (3.8 hm<sup>3</sup>/a) and Driekoppies Dam (7.4 hm<sup>3</sup>/a), total evaporation losses are estimated to be approximately ...(text unreadable).]

#### A.2 LOW ASSURANCE

The total allocations of water (in cubic hectometres per year) at Low Assurance stated in Article 12 (2) have been derived as follows:

EXISTING (1981) PROVISION FOR FUTURE TOTAL			
South Africa:			
Upstream of Vygeboom Dam	23.8 <sup>68</sup>	0.0	23.8
Other	260.2 <sup>69</sup>	97.0	357.2
Sub-total South Africa	284.0	97.0	381.0
Swaziland:	177.2	83.0	260.2
Total	461.2	180.0	641.2

[<sup>68</sup>As stated in Article 12 (11) (a).]

[<sup>69</sup>Includes the evaporation losses from Shiyalongubo Dam, Which have not been qualified separately.]

#### A.3 CONVERSION FACTOR

The multiplication factor for converting water at Low Assurance to water at High Assurance stated in Article 12 (4) has been calculated as the ratio of the sum of the constant drafts<sup>70</sup> from

Driekoppies and Maguga Dams to the sum of the stepped drafts<sup>71</sup> from Driekoppies and Maguga Dams operated independently of each other.

(<sup>70</sup>The constant draft used was that flow which can be abstracted from a dam at a uniform monthly rate throughout the simulation period without the dam failing in any one month.)

(<sup>71</sup>The stepped draft used was made up of two elements, the upper draft and the lower draft. The upper draft is a uniform monthly flow which can be abstracted from a dam at least 80% of the time on average (whenever the dam storage is above a particular rule curve). The lower draft is a uniform monthly flow which can be delivered throughout the remainder of the simulation period without the dam failing in any one month.)

The multiplication factor of 0.794 stated in Article 12 (4) is based on the assumption that the gross storage capacities, constant and stepped drafts are as follows:

	<b>DRIEKOPPIES</b>	<b>MAGUGA</b>	<b>TOTAL</b>
Gross storage capacity (hm <sup>3</sup> )	130	295	
Constant draft (hm <sup>3</sup> /a)	154	282	436
Stepped draft (hm <sup>3</sup> /a)	183	366	549

#### A.4 TRANSMISSION LOSSES

Transmission losses are deemed to be the water released from Driekoppies and Maguga Dams for use other than the generation of hydro-electric power only plus the utilisable runoff downstream of the said dams minus Net Consumption downstream of the said dams.

The transmission loss allowance of 42 cubic hectometres per year at Low Assurance stated in Article 12 (5) (a) is a preliminary estimate which may be adjusted in accordance with the provisions of Article 12 (6).

#### A. 5 AFFORESTATION

The maximum areas of afforestation in hectares stated in Article 12 (8) have been derived as follows:

	<b>EXISTING (1978)</b>	<b>PROVISION FOR FUTURE<sup>72</sup></b>	<b>TOTAL</b>
Republic of South Africa	53 100	37133	90233
Kingdom of Swaziland	29400	3042	32442
Total	82500	40175	122675

(<sup>72</sup>Areas based on afforestation permits issued between 1972 and 1981 but which had not been developed by 1978.)

The estimated mean gross water use of these areas of afforestation in terms of reduction of mean annual runoff is accepted to be as follows in cubic hectometres:

	<b>EXISTING (1978)</b>	<b>PROVISION FOR FUTURE<sup>73</sup></b>	<b>TOTAL</b>
Republic of South Africa	63	36	99

Kingdom of Swaziland	<u>42</u>	<u>4</u>	<u>46</u>
Total	105	40	145

(<sup>73</sup>Areas based on afforestation permits issued between 1972 and 1981 but which had not been developed by 1978.)

The provision for future afforestation in the Republic of South Africa and the Kingdom of Swaziland is estimated to be equivalent to High Assurance demands of 16.2 cubic hectometres per year and 2.5 cubic hectometres per year respectively.

## B. WATER DATA FOR APPORTIONMENT OF CAPITAL COST

### B. 1 MEAN BASIC WATER SHORTAGES

The mean basic water shortages are defined as those shortages experienced by consumers (irrigation, domestic, livestock, municipal, industrial and mining use) downstream of Vygeboom Dam on the Komati River and along the Lomati River as they existed in 1981 but under conditions of afforestation as it existed in 1978. These shortages are deemed to be divided as follows:

CUBIC HECTOMETRES PER YEAR PROPORTION		
Republic of South Africa	29.2	0.89
Kingdom of Swaziland	36	0.11
Total	32.8	1.00

### B.2 INCREMENTAL WATER ALLOCATIONS

The incremental water allocations based on the provisions for future use given above, are as follows:

	South Africa	Swaziland
Low Assurance future allocation (refer Section A.2)	97.0	83.0
Low Assurance converted to High Assurance at 0.794	77.0	65.9
(refer Section A.3) High Assurance future allocation(refer Section A.1)	17.8	4.2
Afforestation equivalent(refer Section A.5)	16.2	2.5
Total incremental water allocation expressed as equivalent High Assurance water	111.0	72.6
Symbol in formulae in Annex 2	$i_r$	