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Chapter 6

ASSESSMENT AND PRESCRIPTION

> "Thirty years is a rather short transitional period for the necessary major adjustments in water policies to be developed in response to limited water availability" (Allan, 2000:3).

6.1 Introduction

The linkages between the hydropolitical processes of securitization, desecuritization and regime creation in the international river basins in South Africa have been established in the preceding chapter. In short, the political aspects of institutional development in the water sector can now be assessed by means of the study on South Africa and its international river basins. What remains is to return to the statement of the problem, the various sub-problems and the respective hypotheses in order to determine their validity.

6.2 Statement of the Problem

In order to determine what the political aspects of institutional development in the water sector are, and in particular how the dynamic interaction between core aspects takes place, two opposing trends have been assessed as they pertain to South Africa's international river basins. The first trend is related to a zero-sum outcome, which involves the process of securitization, while the second is related to a plus-sum outcome, which involves the process of desecuritization by means of regime creation. This has been captured in the fundamental research question: how can the potential zero-sum outcome of basin closure be transformed into a plus-sum outcome in South Africa's international river basins?

Based on the empirical evidence provided in the case study, regime creation has been an effective instrument for the transformation of a potential zero-sum outcome into a plus-sum outcome under conditions of basin closure in all of South Africa's international river basins, provided that two specific conditions have been met:

- The non-hegemonic state within the given international river basin chose to accept the terms of the regime offered by South Africa.

- The actors chose to define their situation in terms of national self-interest and sought to maximize their material gains from the cooperative endeavour.

Empirical evidence shows that when these two conditions have not been met, then a zero-sum outcome persisted, always to the long-term detriment of the non-hegemonic state.

The literature review and *selected theoretical dimensions*, and the subsequent *practical applications of the theory* in the empirical case study, has provided sufficient data and analytical tools in order to test the validity of the various hypotheses.

6.2.1 The First Sub-problem and Hypothesis

(a) *First sub-problem:* What are the possible consequences of basin closure in an international river basin?

(b) *First hypothesis:* If basin closure is left unchecked then it can give rise to an increasing level of insecurity in different riparian states within the given international river basin, which can translate into a fundamental national security concern when the economic growth potential of the state depends on secure access to that water.

The empirical data from the South African case study has shown that national security concerns played a dominant role in driving perceptions of insecurity. This national security concern was first articulated by the hegemonic power in the particular international river basin in the form of economic growth potential that was likely to be curtailed as the result of water scarcity. This gave rise to the early South African hydraulic mission, which saw a number of reconnaissance studies being done in order to determine the feasibility of importing water from international river basins such as the Okavango and the Zambezi. In terms of this threat perception, endemic water scarcity posed a natural limitation to the economic growth potential of South Africa, establishing a linkage between water availability and economic security. This was not seen in terms of a political problem, but rather in terms of a challenge to human technical ingenuity, so the proposed solutions were entirely of a technical engineering nature. Stated simplistically, a first-order resource scarcity simply demanded sufficient technical ingenuity if it was to be resolved in terms of this approach. The entire *problematique* was thus couched in rhetoric that was primarily first-order resource in focus.

It was only when the anti-colonial and anti-apartheid struggle took root in Southern Africa, that a linkage was created between water scarcity, basin closure and national security. The dynamics of this process can be understood in terms of second-order resources, with the application of technical ingenuity to the solution of the problem arising from a first-order scarcity within a given river basin. This is not dissimilar to the arms race, where increasing levels of technical ingenuity are applied to the solution of a perceived problem, until such time as the one party to the race is forced to withdraw as it runs increasingly into second-order scarcity problems. In the South African case, it was the application of technical ingenuity solutions in the form of dams, water transfer schemes and IBTs, that became the instrument by which insecurity was cascaded downstream into lower-order riparian states. It is for this reason that Mozambique is now confronted with a serious limitation to its economic growth potential, simply because the successive application of technical ingenuity to the solution of a perceived first-order scarcity problem by South Africa, has resulted in structural scarcity, which can be regarded as being a specific form of induced scarcity.

There is no evidence that basin closure became a primary driver of insecurity in its own right, at least for the hegemonic state. This means that water scarcity is not an independent variable, but is impacted on *via* threat perceptions, which in turn derive their primary stimulus from outside of the water sector. Threat perceptions are thus an important interceding variable, because it interprets water scarcity in terms of a wide range of other criteria, and results in a specific response, which in turn is interpreted by other actors through the lens of their own prevailing threat perception. In this context, perception becomes reality because it results in tangible outputs that elicit specific responses in a dynamic fashion.

The conclusion reached in light of the empirical evidence, is that the *first hypothesis* is valid if the entire analysis is biased in favour of first-order resource scarcity alone. Seen in this manner, a linear relationship exists between water scarcity and threats to the security of the state, primarily of an economic nature. When second-order resource availability is factored into the equation, the *first hypothesis* is also valid, but becomes far more nuanced than this simplistic linear relationship suggests. Seen in this light, disparities in political power between the respective riparian states translate into different capacities to mobilize technical ingenuity, with a kind of hydropolitical “arms race” ensuing in which dams and IBTs become the “weapon” of choice. This leads ultimately

to the cascading of insecurity to all other riparian states, triggering a political crisis that makes a new type of demand on second-order resources in the form of social ingenuity, seen in crude terms as the capacity to broker an agreement between otherwise hostile actors. The independent variable is consequently the capacity to mobilize second-order resources, in the appropriate quantities and of the appropriate type, at the appropriate moment in historic time; and to apply these to the effective solution of the problem. When this is not done, or when a given riparian state is simply unable to do this, then basin closure gives rise to increasing levels of insecurity in the given international river basin. It can therefore be concluded that basin closure does result in increasing levels of insecurity, which can become a fundamental national security concern for non-hegemonic states, only if they are adaptively insecure.

6.2.2 The Second Sub-problem and Hypothesis

(a) *Second sub-problem:* What are the possible consequences of increasing levels of insecurity within a closed (or closing) international river basin?

(b) *Second hypothesis:* If increasing levels of insecurity arise from basin closure in an international river basin, then one of the possible outcomes is a process of securitization, whereby a hydropolitical security complex emerges. The process of securitization is generally based on a zero-sum principle, so consequently this sparks off an escalation in the levels of insecurity for downstream users of the water, thereby exacerbating the conflict potential that already exists between the riparian states. Broader threat perceptions therefore play a role in either attenuating, or accelerating this process, because they are formed through historic experience and influence decision-making into the future.

The empirical data from the South African case study has shown that increasing levels of securitization are indeed an outcome of a complex process in which water scarcity is only one of the factors involved. The primary driver of the process of securitization is outside the hydropolitical sphere, being derived directly from the high politics of the anti-colonial and anti-apartheid struggle. This struggle, which saw apartheid as being a special form of colonialism, added an ideological dimension to the political equation that became all pervasive in the international river basins under review. Significantly, the process of securitization was driven primarily by a specific structure within the hegemonic power. This structure - the State Security Council - translated the threat perception into what it

called the "total onslaught" against every sector. Consequently the *Total National Strategy* was developed as an official policy response, with a two-pronged approach embracing an incentive to cooperate in the form of development projects (known technically as a policy contingency), and a disincentive to possible non-cooperation in the form of military retaliation. It was this two-pronged approach that became a fundamental driver of securitization in the water sector, as the water / economic development / national security nexus became more clearly defined.

The empirical data shows that the final outcome of this complex process has two possible permutations. A zero-sum outcome occurred when two specific conditions were met:

- When the non-hegemonic state within a given international river basin chose not to accept the terms of the regime offered by South Africa.

- When the actors defined their situation in terms of an ideological dimension such as the anti-colonial or anti-capitalist struggle.

A plus-sum outcome occurred when two specific conditions were met:

- When the non-hegemonic state within a given international river basin chose to accept the terms of the regime offered by South Africa.

- When the actors defined their situation in terms of national self-interest and sought to maximize their material gains from the cooperative endeavor.

As a result basin closure became an indirect consequence of the intensive application of technical ingenuity solutions by the hegemonic power. This in turn acted as an impetus for regime creation, but only after national security fears were invoked from the broader political arena. Regime creation was thus a direct result of securitization, but once established and functioning, the regime became a source of certainty in an otherwise uncertain world, and consequently an instrument of desecuritization. For the hegemonic state, this certainty was derived from the limited range of options that were left open to the other party, whereas for the non-hegemonic state, this certainty was derived from the material benefit that cooperation had resulted in. The transaction cost of national security for South Africa, thus became the investment needed to offer sufficient inducement to the other riparian state not to challenge the policy contingency and defect from the

cooperative arrangement. This was defined by the policy contingency threshold in all cases. It was the regime that facilitated negotiation, which ultimately allowed for a narrowing of the range of alternatives that each actor could realistically consider, which in turn became the fundamental driver of desecuritization.

There is no evidence of the emergence of a hydropolitical security complex because hydropolitical considerations have never been both a necessary and sufficient condition for securitization. There is substantial evidence to suggest that a "hydropolitical complex" is emerging however, which can be regarded as being a specific component of the regional security complex. The conclusion reached in light of the empirical evidence is that the second hypothesis is correct, but with a downgrading of the concept of a hydropolitical security complex to a "hydropolitical complex" instead (i.e. removing the word "security" and thereby making it a component of the larger regional security complex).

6.2.3 The Third Sub-problem and Hypothesis

(a) *Third sub-problem:* What are the alternatives to the securitization of water resource management that exist in an international river basin facing closure?

(b) *Third hypothesis:* If regimes are based on a plus-sum principle, then regime creation can become an effective mechanism for increasing the security of supply, while actually desecuritizing the management of water resources in an international river basin that is facing closure.

The empirical data from the South African case study has shown that this hypothesis is entirely valid. While regime creation was not originally the result of basin closure, once created it provided an area of certainty between the respective riparian states. Regime formation was originally driven by national security considerations, but once created became an instrument of desecuritization. The plus-sum outcome derives from the fact that the hegemonic power has to create sufficient incentive in the form of policy contingency for the other actor not to defect - a condition that is more likely to occur when the other actor defines the situation in terms of national-self interest rather than in terms of an ideological consideration. Furthermore, once created regimes are extremely robust and resilient, and can consequently become increasingly effective over time.

6.2.4 The Fourth Sub-problem and Hypothesis

(a) *Fourth sub-problem:* What are the critical elements of regime creation that can be considered as a management model in the various South African international river basins?

(b) *Fourth hypothesis:* If the conflict potential is institutionalized, and a confidence building mechanism is established between potentially hostile riparian states by means of a regime, then three critical elements are needed in order for this to be effective. These are: (i) a common set of rules and procedures that are mutually acceptable to all of the affected role-players, because this fosters the plus-sum principle by reducing uncertainty, and creates the normative foundation for future cooperation; (ii) uncontested hydrological data because this builds confidence and creates the capacity to manage problems effectively; (iii) a conflict management mechanism needs to be developed in order to address the naturally existing conflict potential that is inherent in basin closure, because it prevents the conflict from escalating into an issue of possible national security concern.

The empirical data from the South African case study has shown that this hypothesis is valid. Regimes are nothing more than a codification of agreed upon rules and procedures, some of which are recorded as part of the initial agreement, and some of which exist as a normative code of expected behavior. As they become more effective, any given regime develops its own unique set of procedural norms. These rules initially involve strictly non-technical procedural matters, but as the regime evolves over time, it starts to embrace the more technical issues arising from the methodologies for the collection, processing, interpretation and dissemination of hydrological data. It can be concluded that one of the empirically verifiable indicators of regime growth after initial creation is the way that rules are incorporated in the management of basin-wide hydrological data. The acceptance of rules and procedures for the collection and processing of basin-wide hydrological data, yields a threshold effect in its own right, and consequently becomes a significant event in the potential evolution of a regime into an institution.

The empirical evidence shows that hydrological data is a critical component of any effective regime. A strong correlation exists between the existence of intense political rivalry at the inter-state level and the contestation of hydrological data, with the converse also holding true. In all cases the process whereby basin-wide hydrological data is collected, evaluated and eventually institutionalized, is always accompanied by a period

of vacillation, but once accepted such data acts as a strong unifying factor. In this regard there seem to be three specific steps in this process, each representing a challenge in its own right.

- The actual collection of data requires a physical infrastructure of roads, hydrometric stations, telemetry hardware and the existence of trained personnel. All riparian states are not equally well endowed with these elements.

- Once collected, the data needs to be processed and stored. This requires that there must be sufficient institutional capacity in various forms in order to manage the process of transforming the raw data into meaningful results. While this is second-order resource dominant, the overall configuration of the specific resource needed can be generically called technical ingenuity, because it primarily involves technical processes that are essentially the domain of the natural sciences.

- Once collected and processed, the data needs to be legitimized in order to make it acceptable to all riparian states. It is this process of legitimization that institutionalizes data and converts it into knowledge. This requires that there must be an agreed methodology for the processing and interpretation of the raw data if it is to be uncontested. While this is second-order resource dominant containing elements of technical ingenuity, the overall configuration of the specific resource needed can be generically called social ingenuity, because it primarily involves the political processes of negotiation, compromise and consensus building.

The empirical evidence shows that a regime becomes a conflict management mechanism in its own right. Furthermore, all effective regimes have a formal dispute resolution mechanism but this has never been used in any of the international river basins under review. In fact in the case of the TPTC, the existence of a major conflict between two of the riparian states simply meant that the regime became dysfunctional without the cause of the dispute ever being subjected to any form of dispute resolution process. A formal dispute resolution process becomes extremely important in an institution when defined in the narrow sense of that concept, because all riparian states are sovereign entities and are never likely to agree to be subjected to enforcement arrangements without such a mechanism. Consequently, it can be anticipated that the actual use of a conflict management mechanism can be regarded as being empirical evidence of the

transformation of a regime into an institution - a theoretical possibility - but with nothing to suggest that this is necessarily the outcome of regime creation over time.

6.2.5 The Fifth Sub-problem and Hypothesis

(a) *Fifth sub-problem:* What is the necessary condition for the establishment of a regime in a closed (or closing) international river basin?

(b) *Fifth hypothesis:* If sufficient second-order resources can be mobilized by the various riparian states, then a viable regime can be created within the respective water resource management structures in a closing international river basin.

The empirical data from the South African case study has shown that second-order resources are a necessary pre-condition for the maintenance of a regime over time, rather than the initial establishment of the regime. In this regard, second-order resources play a critical role in 6 specific aspects of regime creation.

Firstly, the initial definition of the situation by an actor when offered a regime by the hegemonic power becomes a threshold event. Empirical evidence has shown that when an actor has chosen to define the situation in terms of ideological considerations, a zero-sum outcome has been the final result, whereas a plus-sum outcome has occurred when the actor has chosen to define the situation in terms of national self-interest. The decision by the negotiators at the time is influenced by the configuration of the second-order resource availability.

Secondly, the collection and processing of hydrological data is second-order resource intensive. Riparian states with a second-order resource scarcity, which is manifest as adaptive insecurity, are simply unable to collect and process sufficient data in both spatial and temporal terms to enable them to make an impact on the final negotiations.

Thirdly, once collected and processed, the hydrological data needs to be legitimized. This is a particularly important threshold event in regime evolution. Riparian states with a specific form of second-order scarcity - social ingenuity or the capacity to broker agreements - simply become irrelevant in the evolution of the regime, and even run the risk of being totally marginalized as has occurred with both Zimbabwe and Mozambique.

Fourthly, the process of legitimization dealt with in the previous paragraph results in the conversion of hydrological data into institutionalized knowledge. In the face of persistent second-order resource scarcity (or adaptive insecurity), this conversion is improbable, and if facilitated by a third party, will merely result in a new configuration of dependency emerging. Second-order resources therefore bring a degree of independence in determining the nature and extent of the institutionalization of knowledge, with obvious long-term benefits arising from this for the riparian state concerned.

Fifthly, all regimes that are effective have shown the tendency to be refined over time as they are confronted by increasing levels of complexity. In this regard regimes go through a process of evolution in response to the crises that they attempt to resolve. The way in which this crisis is perceived and dealt with by any riparian state is second-order resource intensive, so actors that are debilitated by second-order resource scarcity (or are adaptively insecure) are less likely to be in a position to influence this evolution in their favour.

Finally, for any regime to remain effective in the face of basin closure, a redefinition of the core problem being managed needs to be made from time to time. This results in the classic transition from a predominantly supply-sided management approach to a more demand-sided management approach over time. This transition is dependent on the extent to which data has been institutionalized and becomes knowledge in the narrow sense of that concept. This knowledge in turn builds consensus among the decision-making elites within the regime, bridging possible ideological divides that may exist, thereby allowing for the incremental adjustments in policy to be made as needed.

6.3 Conclusion

The availability of, and accessibility to water is an essential prerequisite for sustained economic growth and development. When water availability becomes tenuous, the management of water resources becomes a strategic matter, and once decisions are made about who gets what, when, where and how, the process enters the political domain. Hydropolitics is nothing more than the authoritative allocation of values in society with respect to water. When water crosses international borders, then sovereignty becomes a factor. Consequently the allocation of water in one international river basin as a result of the exercising of the sovereign rights by one riparian state impacts on, and can be interpreted as being a challenge to, the sovereign aspirations of another riparian state.

The management of water resources in closed international river basins is consequently more about politics and less about water. Regime creation is therefore an extremely important aspect of IWRM in international rivers. The South African case study has shown that regimes are valuable instruments for the desecuritization of water resource management, and are vital if the unintended consequences of the "hydrological arms race" that are inherent to resource capture are to be averted. In this regard the major challenge for any regime is the harmonization of national development strategies between all riparian states, which cuts to the very heart of sovereignty as a key defining factor in the international political system. The emergence of a "hydropolitical complex" as a component of the Southern African regional security complex is a development that reflects both the importance of water to the future economic prosperity of the SADC region, and the complexity that arises from what initially seems to be a seductively simple act of water resource management.

In conclusion then, institutional developments in the water sector, particularly as they pertain to the management of international river basins, are primarily driven by political aspects. In this regard sovereignty is a fundamental issue, so regimes are a valuable form of specialized institution that serve to desecuritize water resource management in international river basins, and thereby prevent the occurrence of a zero-sum outcome as the result of basin closure. Water scarcity need therefore not necessarily be a limiting factor to the economic growth potential of the state. Second-order resources are consequently the independent variable driving institutional development, as shown by the South African case study. It is the configuration of second-order resources in a given international river basin that converts the potential zero-sum outcome of basin closure into a plus-sum outcome, thereby becoming a fundamental aspect of institutional development in the water sector.