KALLICRATES SCHEME AND WATER GOVERNANCE IN GREECE

Marianthi V. Podimata and Panayotis C. Yannopoulos¹

Environmental Engineering Laboratory Dept. of Civil Engineering, University of Patras, GR-26500 Patras Greece E-mail: <u>p.c.yannopoulos@upatras.gr</u>¹

ABSTRACT

Greece faces challenges to implement its water policy in an effective manner. In view of EU WFD requirements, Greece adopted an administration structure concerning the implementation of water policy by voting Law 3199/2003. However, last year, due to financial crisis, the Greek government instituted a new scheme in governing administration by voting Law 3852/2010, known as "Kallikrates Law. Hence, the Hellenic administration structure has been transformed largely and several major administrative reforms in government units have been altered. This institutional reform is expected to generate several impacts on the broader political and institutional Greek context, including water governance.

The present paper discusses issues related to water resources management and the new challenges emerged under Kallikrates administrational umbrella. Through a critical assessment of the current situation in Greece, the scope of the article is to present the *status quo* of water management in local level with the new Kalllikrates administrational units. The essay discusses arising administrative challenges in implementing water policy. Finally, it evaluates the results of this institutional reform by investigating the effects of this new water regime. Actually, the present study tries to address the problem of lack of coordination among institutions with joint competence for water resources management. It tries to answer questions concerning the efficiency of water agencies under the new administrational scheme.

Scoping to contribute to the research field of water policy evaluation, the paper concentrates on emerged problems at a trans-regional basin. Alfeios River Basin, which is located in Peloponnisos peninsula in Greece, demonstrates the administrative peculiarity of being under the parallel supervision of two local authorities, which have the main responsibility for water protection and management of the specific area. Taking advantage of that feature, the authors try to examine the above questions on the case study of Alfeios River basin.

Keywords

Integrated Water Resources Management, Kallikrates Law, Trans-regional, Interregional, River Basin, Water Governance

1. INTRODUCTION

Water governance has been a widely discussed issue among academics, international organizations and policy makers. It refers to political, institutional and administrative values, systems and actions whose responses affect the use, development and management of water resources (Vinke-de Kruijf et al, 2010). Water governance aims at the equitable exploitation of water resources that are unevenly distributed in time and space. Governing water includes formulation of water policy, promulgation of legislation, implementation of water administration through institutional schemes and clarification of institutional roles and responsibilities [(http://www.watergovernance.org/), accessed 20 January 2012]. The establishment of well-defined and coherent roles and responsibilities among water users improves the efficiency of water resources management. Water policy implies several actors and shared responsibilities among them. A multi-level governance approach conveys sharing of policy making and responsibility at multiple government levels (local, regional, provincial/state, national, and international) where an inter-sectoral dialogue and coordination must take place. However, water governance should not be restricted to government action by public authorities only. It needs collective action to become more effective. Private stakeholders should involve and participate in several levels of water governance (Kuks, 2004).

In Greece, water governance had been for a long time the major responsibility of the central state. However, in the 1980s and mainly in the 1990s, regional administrations and local authorities acquired major responsibilities and competencies through a process of decentralization (Kampa and Bressers, 2008). These waves of decentralization have challenged centralized regime of Greece which is considered as one of the most centralist European states (Hlepas and Getimis, 2011). Nowadays, several administrative tasks have been transferred to local authorities. Water sector has experienced institutional fragmentation at several levels of government. The extent of power, defined responsibilities and competences of these levels form the main characteristics of Greek water policy. The present paper discusses the national regimes of water resources in Greece (combination of hierarchical structures, participatory functional capabilities and institutional mechanisms) under Kallikrates administration framework which is the new scheme in governing administration. The aim of the manuscript is to investigate the effects of the new administration scheme concerning water sector. Authors tried to illustrate this subject of discussion with a case study such as Alfeios River Basin (ARB). This particular selection was based to the fact that it is under the parallel supervision of two local authorities, which have the main competency for water protection and management of the specific area in Peloponnisos, Southern Greece.

2. BACKGROUND

The European Water Framework Directive (WFD) 2000/60/EC is Europe's legislation about water policy that follows the principles of Integrated Water Resources Management (IWRM). WFD defines river basin as management unit in which a 'River Basin Management Plan' (RBMP) should be implemented. Through the RBMP implementation, all inland and coastal waters within defined River Basin Districts (RBD) must reach at least good status by 2015 (European Communities, 2009). In order WFD requirements to be achieved, a suitable administrative and management structure should be organized, since it is the institutional vehicle for effective implementation processes. However, WFD does not set out specific guidelines to European member countries about administrational framework on water resources management, due to differences in governmental schemes of member countries. Concerning the existing water governance of each country, it is up to each European country to develop its own national strategy according to the *status quo* and peculiarities of its own mechanisms, legislation and experience (Mylopoulos and Kolokytha, 2008). The application of WFD in Greece does not show great progress as the achievement of WFD goals

is not straightforward, especially when limitations of time and schedule are taken into consideration. Hence, the 'embodying' of WFD in water policy of Greece came after a long delay with Law 3199/2003. Among other factors, the Greek institutional and organizational framework rendered the implementation progress insufficient (Alexopoulou et al, 2005).

At the end of May 2010, the Greek Parliament voted a law providing for the reform of local and regional public administration, known as Kallikrates Law 3852/2010. The process of public sector reformation aimed at reducing local administration entities and generating fiscal savings in order to benefit from economies of scale. It is actually a reorganization of the first and second tier of local government, as shown in Table 1. Hence, Greece now comprises two tiers of regional and local administration (Panopoulou et al, 2011). Compared to the previous administrational reform (i.e. Kapodistrias Law 2539/1997), Kallikrates reform created bigger and stronger elected municipalities that have been merged into approximately one third of their previous number and acquired additional responsibilities. It also eliminated the number of the highest tier of regional administration to one half, where the General Secretary is appointed by the government. Kallikrates reform merged the prefectures into about one quarter of their previous number and transformed them from prefectures to elected regions, as well. Restructuring may offer new opportunities for the implementation of new public management in water sector, following a bottom-up process, such as the strengthening of local and regional authority involvement in economic development. However, the final outcome of the new administrational reform will be judged for its pros and cons after a long period of implementation.

TABLE 1. Administrative divisions of Orecee with Ramkrates transformations			
Kallikrates reform			
7 non elected decentralized administrations			
13 elected regional authorities			
325 elected municipality authorities			

TABLE 1: Administrative divisions of Greece with Kallikrates transformations

3. GREEK INSTITUTIONAL AND POLICY FRAMEWORK

Greece is considered to be a country with a complicated administrative and legislative framework. WFD requirements about IWRM at basin level led to authority decentralization on water sector. Until then, there had been a restricted central state control about water resources and the decision-making powers were distributed by the highest levels of public administration. The current state of water resources management is defined by the existing legislative and administrative framework of Greece. The basic and main points of this legislation and administration follow next.

3.1 Legislative framework

The national legislative framework related to water resources is much extended. The basic frame of legislation on water resources management, besides the Law 1650/1986 on environmental protection (that imposed the application of Environmental Impact Assessment Studies), also includes Law 1739/1987 on 'water resources management' and Law 3199/2003 on 'water protection and sustainable management of water resources'. In fact, many law articles are repealed in Law 1739/1987 and other ones have never actually been put into practice. However, Law 1739/1987 remains a basic regulation specialized in water resources management. It characterized water as 'a natural good', established an institutional framework for the management of water resources in 14 defined water districts and introduced a license system for water exploitation, with various permitissuing authorities, in order to overcome water use inconsistencies and rivalries. Competent ministries for each water use were defined. Ministry of Development (former Ministry of Industry, Research and Technology) had the major competence for coordination-elaboration of material substants.

policy, monitoring activities and the supervision for water development programs. Until then, the Ministry of Agriculture had been the main actor in water resources management. Every water usage needed to get official permission and license record, where water abstracted quantity and quality and other terms were defined. Law 1739/1987 also provided for balancing competing water uses (resolution of differences) by trying to coordinate the allocation of rights to water users (Stefopoulou et al, 2008). Presidential Decree 256/1989 defined the water-use license procedure and imposition of fines.

Law 3199/2003 on 'water protection and sustainable management of water resources' is the incarnation of WFD goals and was put into force at the end of 2003. One can notice that the compliance with WFD came after a three years delay, when Greece had to face penalties for not enacting the water policy of the European Community. By giving priority to the ecological status of water bodies and emphasizing water environmental protection, Law 3199/2003 defines river basin as the spatial area where water management measures will be implemented. The development of a six year RBMP, including programs of measures, monitoring and specific measures, is introduced by Law 3199/2003. It defines new forms of competent water agencies where the Ministry of Environment has had the prime competence about national water coordination and monitoring. The law also determines representation in water councils for enhancing public participation in decisionmaking. Presidential Decree 51/2007 transposed more articles of WFD referring to RBMPs and to public participation in decision-making process.

3.2 Administrational framework

Until the mid-1960s, Greece's water policy regime was quite simple and had few actors involved, in administration and coordination. Later, the institutional context in the water sector became quite complex and fragmented, decreasing the prospect for coordination (Kampa and Bressers, 2008). Today, the distribution of power among administrative structures about water protection and water resources management is divided into several tiers/levels (ministry, decentralized administration, regional administration, municipal administration, and others), as shown in Figure 1.

According to the Law 3199/2003 a ministerial National Water Committee (NWCt) has the following duties: determines the national policy on water protection and management, ensures policy implementation, approves national water programs, defines river basins and competent regional authorities, and submits to Parliament and the National Water Council (NWC, an extended representative board with consulting role) annual report concerning water resources status in Greece and compliance to European policy. According to the official website of Ministry of Environment, Energy and Climate Change, the prime competent agency, the Special Secretariat for Water - SSW (former Central Water Agency) is responsible for the development and implementation of all programs related to the protection and management of the water resources in Greece and the coordination of all competent authorities dealing with the aquatic environment. The implementation of the Water Framework and the Marine Strategy Directives, as well of the related daughter Directives, fall within the scope of the activities of the Secretariat. The Secretariat is headed by a Special Secretary, appointed by the Ministry of Environment, Energy and Climate Change and Government. The Secretariat, in collaboration with the Regional Water Authorities (RWA), formulates and , upon approval by the National Council for Water, implements the River Basin Management Plans and the national monitoring program [(www.ypeka.gr), accessed 22 January 2012] upon the approval by the National Council for Water. The Regional Water Councils that are consisted of regional representatives are responsible for consulting about the formulation RBMPs.

Even though, Law 3199/2003 establishes competent authorities in water policy, as shown in Table 2, the responsibilities of these authorities dealing with water management are not clearly stated and

fully clarified (Alexopoulou et al, 2005; Koutiva et al, 2007). Moreover, fragmentation, overlapping of similar responsibilities, lack of cooperation and bureaucratic functions impose barriers in water planning and hinder the implementation of RBMPs. Horizontal fragmentation of responsibilities among government agencies is also considered as a basic reason for the persistent failure of Greek governments to enforce an effective regulatory framework in environmental policies, in general (Koutalakis, 2011). Although, several administrative tasks have been transferred to local authorities, the truth is that regional authorities have little experience in self-governance and have not succeeded to become fully operational and autonomous. The transfer of new competencies was not accompanied with fiscal and administrative capacities. Actually, theirs competence is related to the enforcement and application of regulatory standards defined by national legislation or the environmental impact assessments of economic activities. Providing of management services in local authorities with closed nature and lack of significant financial resources and qualified personnel is not expected to have directly fruitful results (Koutalakis, 2011).

TABLE 2: Established new administrative units by Law 3199/2003

	Administrative unit	Abbreviation
1	National Water Committee	NWCt
2	National Water Council	NWC
3	Special Secretariat for Water (former Central Water Agency	SSW
4	Regional Water Authorities	RWA
5	Regional Water Councils	RWC





4. THEORY BEHIND PRACTICE

The implementation of water policy in a river basin allows the inclusion of a full array of variables (physical, biological, socioeconomic, etc.) involved in land and water resources management, since all key actors are physically depended upon functions made inside the geographical unit of the basin. This gives an advantage in water resources management concerning the execution of activities and measures in water sector (Koutiva et al, 2007). However, as mentioned before, the division of management responsibilities among numerous competent agencies located in a river basin constitutes an obstacle for rational implementation of RBMPs in case the above local administration bodies do not cooperate with each other efficiently. The emergence of new institutions, municipal enterprises, leaders and other players have created a much more complex environment that increased fragmentation (Hlepas and Getimis, 2011).

ARB has been selected as a case study because it represents a characteristic example of institutional fragmentation and mismanagement of IWRM in Greece. It also constitutes one of the major hydrologic basins (\approx 3650km²) of Peloponnisos peninsula in Southern Greece. It is in fact a complex and heterogeneous area that confronts many water and other environmental risks. This is due to the intensive presence of human activities (urbanization, farming, agro-industrialization, recreation) that have had an adverse effect on the river network shape, on the valley floor morphology, and on the quality and quantity of water (Manariotis and Yannopoulos, 2004). Actions and daily stakeholders' decisions in the basin alter the function of catchments with consequences for ecosystem, human welfare, and economic value (Everard et al, 2009). It is obvious that water management not only deals with complex ecological and technological systems, but also it has become a complex system characterized by a diversity of socio-ecological, economic and technical elements (Knieper, et al, 2010).

In ARB there are some institutional obstacles which have hindered integrated water resources management. It falls under the parallel supervision and jurisdiction of the Decentralized Region of Western Greece and the Region of Peloponnisos, as shown in Figure 2. This happens because RWAs are defined by administrational criteria and not by geographical criteria (river basin). Hence, the boundaries of the study area do not coincide with (or are not included into) the area of one Region. Therefore, water authorities of the two Regions have the main responsibility of ARB protection and management in collaboration with the SSW. NWCt has not determined yet the water authorities with the main responsibility in river basin districtis. The two RWAs mentioned above lie within the wider structure of Decentralized Administration of Peloponnissos, Western Greece and Ionian Islands (DAPWGII). An outcome of the implementation of Kallikrates Law referring to staff mobility has been the unequal distribution of personnel. This is the reason why RWA of Western Greece has about 20 officials (only 8 are specialized) and RWA of Peloponnisos has only 3 officials. Consequently, the quantity and in many cases the quality of the outputs remains poor and insufficient.

Besides these main understaffed competent authorities, there are several other agencies involved in resources management of ARB since water management is often included in institutions that have responsibility for agriculture, food and also public health. Within the administrative organization of DAPWGII rest also Departments of Environment & Spatial Planning, Forest Services, Departments of Rural Planning, Civil Protection and other agencies. According to Kallikrates Law, within the administrative organization of the Regional Administration (Former Prefectures) rest among others, three Departments of Environment and Hydro-economy (Achaia, Ileia and Arkadia) that lack of specialized personnel. The main responsibility for water supply and sanitation rests to municipal technical services. Institutional organizations that influence directly or indirectly ARB water policy

are presented in Table 3. Horizontal interactions and communication channels between the three tiers of administration are almost non-existent, since they operate occasionally in cases of requests for approval of water licences. In many cases municipal policies (not only for water management but also for land development policy) may run against water policies pursued by the regional level. The status of co-competence complicates further the meeting targets of WFD by provoking many bureaucratic problems and forming a weak administrative capacity. Negative effects of this parallel supervision as chopping of total responsibility, over-regulation and sectoral fragmentation reduce the effectiveness of water management (Knieper, et al, 2010) and cause adverse effects in applying the goals of WFD. Furthermore, conflicts are observed among parties with different priorities, goals and approaches leading to fragmentation, inefficiency and nebulous perspectives. Under the circumstances of shortage of public financial resources, the two Regions antagonize for extra funding and press to be recognized as principal policy-makers. Lack of cooperation and lack of common vision among the institutional units hamper even more the decision making procedure (Podimata, 2009).



Moreover, the implementation of Kallikrates Law has inactivated some articles of the Law 3199/2003 which have to do mostly with the consultation process of Alfeios RBMP. The RWCs were inactivated since many institutional representatives do not exist or have been transformed with the new administrational regime. This is why, procedures concerning the development of The

Program of Measures (POMs) for RBD 01 (where ARB locates) have actually stopped and the RWAs are awaiting instructions from SSW. The Law 3199/2003 will change in order to comply fully with the articles of Kallikrates Law. Law amendment is not an easy procedure, as it needs attention from legal experts on the subject of administrative reform and sufficient time. For this case, the SSW is editing the articles of the new Law that will replace Law 3199/2003, after one year of implementation of Kallikrates Law.

Hierarchical	Competent Authorities	Role
Level		
Government	National Water Council	А
	National Water Commission	А
Ministry	Ministry of Environment, Energy and Climate Change (+SSW)	S
	Ministry of Rural Development and Food	Р
	Ministry of Transport and Networks	Р
	Ministry of Finance	Р
	Ministry of Interior, Decentralization and E-Government	Р
	Ministry of Maritime Affairs, Islands and Fisheries	Р
	Ministry of Health and Social Solidarity	Р
	Ministry of Infrastructure	Р
	Ministry of Culture and Tourism	Р
	Ministry of Development & Competitiveness	Р
Decentralized	2 Regional Water Authorities	S,E
Administration	2 Departments of Environment & Planning	Р
	Regional Forestry Department	Р
	2 Departments of Rural Planning	P,E
	Department of Civil Protection	Р
	Department of Local Administration & Decentralization	Р
Regional Unit	3 Departments of Environment and Hydro-economy	E
	3 Departments of Rural Economy	E,P
	3 Departments of Public Works	E,P
	3 Departments of Planning	Р
	3 Departments of Health & Welfare	Р
	3 Departments of Civil Protection	S,P
Municipality	Enterprises for Water Supply and Sewerage	E
	Directories of Technical Services	E
	Local Organizations for Land Reclamation	E
Other	Public Power Corporation S.A.	Е,
	Archaeological authority	S,P
	Land public authority	S,P
	NGOs	S,A,P

TABLE 3: Institutional organizations influencing water policy in ARB

S=Supervisory / A=Advisory / P = Participatory / E =Executive

5. DISCUSSION

All efforts till now are coming from obligations and challenges created by the participation of Greece in the EU framework. There is a 'feeling of obligation' to meet EU standards, since water policy and environmental policy in Greece were never among the top priority areas of public intervention (Kampa and Bressers, 2010; Koutalakis, 2011). Moreover, the decentralization attempt is rather imposed by the financial crisis and insecurity, instead of environmental and resource protection values. For this reason, the perception of water governance in Greece is not very promising. The water sector is a part of broader social, political, and economic development

movement, that is affected by external decisions. Greece today faces an unprecedented financial crisis which affects the overall operation of the governance.

While river basin management does not follow administrational boundaries, Kallikratis Law remains a territorial – organizational reform. Kallikratis decentralization impacts on the administrative institutional structure. So, by definition, this institutional reform could enable problem solving that water governance faces. This is not only a conceptual problem, but also a pragmatic problem, linked to practical matters. Transferring administrative functions from one administrative level to another level is not an easy effort, since it is not accompanied with transferring of operational capacity and functionality. Managing of trans-regional river basins presents special difficulty as well. That fact makes the whole problem more complex. Water governance system (with a multiplicity of permit-issuing authorities) is highly fragmented in Greece. Probably, it will remain fragmented in the coming years.

However, the success of implementing Kallikrates Law is not exclusively based on institutional administration. As mentioned at the introduction, water governance should not be restricted to government action by public authorities. It needs public participative interaction to become more effective. Local and regional governments are nowadays obliged to publicize all their decisions on the internet. Decisions derived from RWA are open-published. Hence, transparency and greater participation of citizens in local issues is expected to rise up. This policy has given a positive impact on Greece's public administration by providing a basis for opening-up the state apparatus to participatory procedures (Koutalakis, 2011). There is indeed an increase of involved public and non-public actors at decision-making procedures concerning water resources management. Unfortunately, the number of interactive networks among these actors is still limited, despite relative attempts (Kampa and Bressers, 2010). According to the Special Eurobarometer 307 Report (Commission of the European Communities, 2008) in a survey conducted between 06/10 and 06/11/2008, Greek citizens have the lowest level of trust in regional and local public authorities.

6. CONCLUSIONS

In Greece, the implementation of water policy will require a major effort supported by new administrational structures and mechanisms. Streamlining legislation, reducing bureaucracy, interdisciplinary collaboration and cooperation between public services, scientific centers and research institutions are obvious prerequisites. A sufficient institutional structure and operation is still missing. By means of necessary institutional arrangements, adopting new attitudes on water public sector and formal commitment to well-defined roles and responsibilities could be key components of a successful implementation of integrated water policy. However, it is still too early to identify the actual contributions of the changes in water services efficiency and the improvement of water resources management. The outcome of Kallikrates in water policy practice is going to be seen in near the future. The impacts of Kallikrates administration scheme on Greece's water policy were described by examining ARB. This field of research merits further elaborations. The present paper is an initial essay in shaping the research field of institutional water policy evaluation. Future work related to the present essay should be done. One idea is to expand the analysis at other transregional and interregional river basins throughout Greece and compare and contrast the implementation of water policy and the operation of water governance.

Acknowledgement

Mrs M.Podimata is supported by a three year doctoral fellowship from the Greek State Scholarship Foundation.

REFERENCES

- 1. Alexopoulou, A., C. Makropoulos and N. Voulvoulis (2005) 'Water Framework Directive: Implementation in Greece' in Proceedings of the **9th International Conference on Environmental Science and Technology**, Rhodes Island, Greece, 2005
- 2. Commission of the European Communities (2008), Eurobarometer 307 Special Report 'The role and impact of local and regional authorities within the European Union' <u>http://ec.europa.eu/public_opinion/archives/ebs/ebs_307_en.pdf</u> (accessed December 22, 2011)
- 3. European Communities (2009) 'Common implementation strategy for the Water Framework Directive (2000/60/EC) - Guidance Document No. 20 - Technical Report 2009 (027), Luxembourg: Office for Official Publications of the European Communities, 2009
- 4. Everard M, J., D. Colvin, M. Mander, C. Dickens and S. Chimbuya (2009) 'Integrated catchment value systems', J. Water Resource and Protection, Vol. 3, pp.174-187
- 5. Hlepas N. K and P. Getimis (2011) 'Impacts of Local Government Reforms in Greece: An Interim Assessment', Local Government Studies, Vol. 37(5), pp. 517-532
- 6. Kampa, E. and H. Bressers (2008) 'Evolution of the Greek national regime for water resources' **Water Policy**, Vol. 10, pp. 481-500.
- Knieper C., G. Holtz, B. Kastens and C. Pahl-Wostl (2010) 'Analysing water governance in heterogeneous case studies—Experiences with a database approach', Environmental Science & Policy, Vol.13 (7), pp.582-603
- Koutalakis C. (2011) 'Chapter 9 Environmental policy in Greece reloaded: Plurality, participation and the Sirens of neo-centralism' in Sustainable Politics and the Crisis of the Peripheries: Ireland and Greece (Advances in Ecopolitics, Volume 8), eds. L. Liam and I. Botetzagias, Emerald Group Publishing Limited, pp.181-200
- Koutiva I., C. Makropoulos and N. Voulvoulis (2007) 'Administrative challenges in implementing the Water Framework Directive in Greece: Stakeholder engagement' in Proceedings of the 10th International Conference on Environmental Science and Technology, Kos Island, Greece, 2007
- 10. Kuks S. (2004) 'Water governance and institutional change' PhDThesis. University of Twente, Netherland, <u>http://doc.utwente.nl/50293/</u> (accessed December 27, 2011).
- Manariotis I. D and P. C. Yannopoulos (2004) 'Adverse effects on Alfeios River Basin and an integrated management framework based on sustainability', Environmental Management, Vol.34 (2), pp. 261-269
- 12. Mylopoulos Y.A. and E.G. Kolokytha (2008) 'Integrated water management in shared water resources: The EU Water Framework Directive implementation in Greece.' **Physics and Chemistry of the Earth**, Vol. 33, pp.247-353.
- Panopoulou E, E. Tambouris, E. Sanchez-Nielsen, M. Zotou and K. Tarabanis (2011) 'Learning from eParticipation initiatives of regional and local level authorities in Greece and Spain', Journal of Balkan and Near Eastern Studies, Vol. 13(1), pp. 77-96.
- 14. Podimata M (2009) 'Establishment and Operation of a Central Watershed Institution in Alfeios Basin aiming the Integrated Basin Management and the Rational Decision Making concerning the Study Area', Postgraduate Thesis (in Greek), Department of Civil Engineering, University of Patras, Greece, p.175
- 15. Stefopoulou A., K. Soulis, M. Papapetrou, S. Kyritis and C. Epp (2008) 'Institutional and policy framework analysis in relation to the application of autonomous desalination systems Greece' **Desalination**, Vol. 220, pp. 455-467.
- Vinke-de Kruijf J., S.M.M. Kuks and D.C.M Augustijn (2010) 'Governing change : experiences from two water sectors in a transition country' in NIG Annual Working Conference 2010, Panel 13: Connective capacity in water governance, Maastricht, Netherlands, 2010.