

Roles of Urban Hydraulics in Masterplanning and River Basin Management Planning

Dr Rahman Khatibi, Peter Brett Associates (Reading)
Seminar

3 January 2008, 13:00-14:00 Building 113, 011

Interactions with the built and natural environments are diverse and using quantitative and soft approaches they are studied in planning, design, management, forecasting and operation. The established knowledge forms of such interactions are a body of *science* encompassing physical to socio-technical complexities composed of many disciplines, one of which is *hydraulics*. Science today goes hand-in-hand with the emerging *scientific culture* of systems thinking, sustainability, uncertainty and decisionmaking by participation. The past “reductive” hydraulic practices are being reinvented today through this emerging culture and therefore *urban hydraulics* is interconnected with a diverse range of disciplines in *professional practices* notably through *masterplanning* of the built environment and *river basin management* of the natural environment. The decisionmaking procedures for such interactions are often embedded in legislations, e.g. the Water Framework Directive, the Directive on Floods and Directive 85/337 on Environmental Impact Assessments.

Urban hydraulics covers a wide range of traditional fields including flood risk management, sewerages, water supply systems and water quality and sediment transport problems. Today’s scientific culture and urban hydraulic capabilities have gaps and retain relics of the past reductionism, utilitarianism and anthropocentrism, when intervention, interference with or encroachments upon the environment were quite acceptable. *Research* has been shaping science and professional practices by gaining an insight into past shortfalls and existing barriers, identifying improvement techniques and communicating the emerging knowledge to raise the culture. Interestingly, research itself is being shaped by the emerging culture and seeking appropriate instruments. Fragmented research activities are now confined to “response mode research” in universities, where they are increasingly building dedicated research centres with dedicated research teams co-operating with similar other centres, software houses and with a range of: (a) funders including national/ regional research councils and European Research Programs and (b) stakeholders including government organisations, regulators, professional organisations and NGOs. Thus, this presentation will cover:

1. The **science** underpinning urban hydraulics (10 minutes): defining problem areas, the emerging professional culture and interconnections with other disciplines;
2. **Professional practices** (10 minutes) outlining EIAs, EISs, SEA, best practice in masterplanning, emerging spatial planning, WFD schedules for the production of plans and the emerging directive on floods, and gaps in professional practices;
3. **Research** (20-25 minutes) discussing the ongoing research activities, research trends and instruments, gaps/barriers in hydraulic research and my contributions and plans.

29-11-2007



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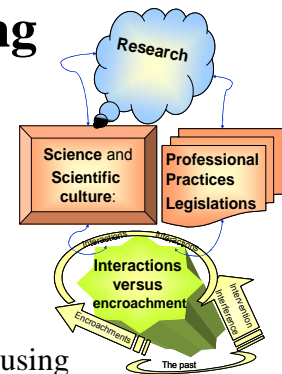
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Abstract
For the presentation
On 3 January 2008

By Dr Rahman Khatibi



Interactions with the built and natural environments are diverse and using quantitative and soft approaches they are studied in planning, design, management, forecasting and operation. The established knowledge forms of such interactions are a body of *science* encompassing physical to socio-technical complexities composed of many disciplines, one of which is *hydraulics*. Science today goes hand-in-hand with the emerging *scientific culture* of systems thinking, sustainability, uncertainty and decisionmaking by participation. The past “reductive” hydraulic practices are being reinvented today through this emerging culture and therefore *urban hydraulics* is interconnected with a diverse range of disciplines in *professional practices* notably through *masterplanning* of the built environment and *river basin management* of the natural environment. The decisionmaking procedures for such interactions are often embedded in legislations, e.g. the Water Framework Directive, the Directive on Floods and Directive 85/337 on Environmental Impact Assessments.

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It is my opinion that there are gaps in our understanding and I am inspired to contribute to:

1. Explaining diversity driven by natural selection and transparency driven by feedback;
2. Forming a science of modelling, model management and articulation of best practice;
3. Promoting open systems, open architecture, open source, open data transactions, open
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