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**Sent:** March-30-10 1:34 PM  
**To:** Living Water Smart ENV:EX  
**Cc:** Kilback, Drew (Richmond)  
**Subject:** WAM submission  
**Attachments:** Participatory Evaluation of Collaborative Water Mgmt Ferreyra and Beard.pdf

Please find my comments below with respect to the Water Act Modernization.

#### **Goal 1: Protect stream health & aquatic environments**

Objectives: I strongly support the three objectives under this goal

##### Possible Solutions:

- Objective 1: I support option A, using environmental flow guidelines
- Objective 2: I support option B, requiring the development of water allocation plan, using criteria to determine priority areas. And, I support option C, where the decision maker must consider the water allocation plan. This allows the necessary discretion required at a watershed level.
- Objective 3: I support option B, to amend the Water Act to prohibit dumping into streams and requiring the person responsible to restore stream health.

#### **Goal 2: Improve water governance arrangements**

Objectives: I strongly support the three objectives under this goal. Summarized, the objectives call for clear accountability, flexible & responsive governance, and integrated management & decision making across jurisdictions.

##### Possible Solutions:

I support the delegated approach to water governance, providing that the watershed agency is properly resourced by the Province, to support fulfilling its mandate and building local capacity. The government must retain its overarching role – setting overarching laws, rules, financing arrangements; deciding the institutions, systems, roles and responsibilities; and enforcing the law. Also, the Province’s role should include improved water data generation and standard setting (including pricing, allocation guidelines, licensing). This role cannot be delegated to a local watershed board. What you want the local watershed board to bring is an “on the ground”, collaborative perspective at the watershed level. The watershed board works within the overarching legal framework set by the Province, and would be responsible for developing and implementing provincially approved watershed management & allocation plans, monitoring, reporting & educating residents, influencing local land use planning, and performing stewardship activities.

The Province should also monitor certain “governance metrics” (see attached paper) of these watershed agencies to promote accountability, transparency, effective dispute resolution and ultimately good decision-making.

#### **Goal 3: Introduce more flexibility and efficiency in the water allocation system**

Objectives: I would suggest breaking objective #1 into two – efficiency in water use and efficiency in administration of water, as they are two quite separate matters. Otherwise, I support the objectives for this goal.

##### Possible Solutions:

- For water use efficiency, the government could incentivize water use efficiency for industry, by pricing water based on actual use as opposed to licensed (or a blended structure where you pay a fixed base fee related to your license, and a variable rate based on actual usage), while not increasing total industrial water fees. Also, the Province needs to recognize that water usage supported by licensee-funded headwater storage is a different matter than groundwater extraction or surface water extraction *without* storage. In the case of Catalyst Paper’s Cowichan Lake weir, there are significant costs borne by the licensee to store water to support its water usage that are not reflected in water fees, but are a cost nonetheless, and which other water users don’t fund.
- For administrative efficiency, I think the Act should permit low risk water use to reduce administration load (similar to Fisheries which authorizes certain low risk work around a stream, etc).
- For providing flexibility, the Act could provide the ability for water users and decision makers to seek water license amendments based on watershed issues and priorities and the ability to use water for a higher value use. To do this, a fair and transparent process, and potential compensation, is required to guide any “low” to “high” water allocation transfers – ie. who decides? what criteria is used? Same as for groundwater withdrawals, a fair and transparent process is required to guide any water allocation transfers. More information on the potential process is required to make a comment on this proposed solution.
- For conserving water during drought, I support first a shared approach, where everyone reduces proportionally, then a hierarchy of uses approach as the drought becomes more serious (eg. human, agriculture and environmental flows are first priority over other uses).
- Also, I recommend that there be more focus on surface water storage to support improved stream water flows. Water conservation and changes to water allocation are not the only tools to meet increasing water demand. In a climate like Vancouver Island, where water is plentiful in the fall/winter period but not in the spring/summer period, water storage makes a lot of sense. And, water storage becomes even more important given the increasing drought conditions expected as climate change become more and more of a reality.

#### **Goal 4: Regulate groundwater extraction and use**

Objectives: I support the objectives for this goal.

##### Possible Solutions:

I support reducing the threshold for large groundwater withdrawals which would be subject to regulation, and by prioritizing critical groundwater areas based on heavy usage, known quantity concerns, significant population dependent upon for drinking water, trans-boundary aquifers, and basins where surface water is at/near allocation limit.

Thank you,

Michelle Vessey

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# Participatory Evaluation of Collaborative and Integrated Water Management: Insights from the Field

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**ABSTRACT** *The Maitland Watershed Partnerships (MWP) is a multi-stakeholder forum established in 1999 in an agricultural watershed in Southwestern Ontario, Canada. This paper presents 10 lessons emerging from the participatory evaluation of the MWPs carried out in 2005. As suggested in the literature and highlighted by the experience of the MWPs, multi-stakeholder collaboration and integration is about learning how to cope with and take advantage from difference, diversity and divergence. Watershed partnerships are arenas in which different types of knowledges, diverse values and divergent sectoral perspectives, are confronted. In this context, inter-organizational leadership is essential to develop and sustain collaborative advantage among multiple public, private and civil society actors. According to the experience of the MWPs, however, embracing difference, diversity and divergence should go well beyond initial planning stages. Instead, pursuing compromise and agreement should also be at the forefront during the monitoring and evaluation stages. Negotiating indicators for monitoring and evaluation that can address water management both as a social process and a technical process is critical, as is making the distinction between partnership outputs and partnership outcomes.*

## Introduction

Natural resource management issues, embedded in the seemingly endless web of ecological and social interactions across temporal and spatial scales, are characterized by their complexity and uncertainty, by their ambiguity and by conflict (Rittel & Weber, 1973; Dryzek, 1987; O’Riordan, 1989). Collaborative, integrated water management (CIWM) is one of the major alternatives that emerged in North America during the 1980s as part of the trend towards more holistic and participatory approaches to natural resource management (Lang, 1986; Margerum, 1997). The discourse, underlying assumptions and main institutional tools of CIWM have evolved throughout the years, influenced by the different ecological, social, economic, institutional and political contexts in which this management approach

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has been implemented (Table 1). In the developed world, mainly Australia and North America, CIWM conceptualizations focused initially on protecting surface and groundwater resources by co-ordinating the many public agencies from different levels of government sharing jurisdiction in the fragmented water landscape (Mitchell, 1990; Ramin, 2004). However, CIWM 'in action' exposed the need to incorporate landowners and other non-governmental actors, especially if water resources were to be protected through actions implemented on private lands (Bellamy & Johnson, 2000; Rickenbach & Reed, 2002). In this context, CIWM aims to address complexity and uncertainty by recognizing the interdependence of natural and socio-economic systems on a watershed basis, emphasizing stakeholder involvement in both decision-making and implementation (Heathcote, 1998; Margerum, 1999). The 'transfer' of the CIWM paradigm to developing countries implied the incorporation of a different set of challenges and imperatives, such as economic development and poverty reduction (Jonch-Clausen & Fugl, 2001). Alternative conceptualizations deemed to be more representative of the perspectives, needs and realities of the developing world are now emerging from within that region (Merrey *et al.*, 2005).

However, current trends in CIWM research and practice in the developed world are shifting the focus from conceptualization and implementation towards evaluation. According to some authors, the premise that CIWM actually contributes to resolving or ameliorating water quality and quantity issues has yet to be critically addressed (Bellamy *et al.*, 1999; Ewing *et al.*, 2000; Conley & Moote, 2003). Furthermore, even the feasibility of achieving deep consensus among the multiple communities of interest coalescing within the 'natural' boundaries of a watershed has been challenged (Kenney, 2000; Lane *et al.*, 2004; Blomquist & Schlager, 2005). Although scholarship on the factors facilitating or constraining collaboration in multi-stakeholder watershed partnerships is growing (Hooper *et al.*, 1999; Margerum, 1999; Smutko *et al.*, 2002), there is a need for research addressing the important issue of how to sustain these collaborative initiatives (Curtis *et al.*, 2002).

This paper presents 10 lessons learned during the participatory evaluation of the 5-year experience of the Maitland Watershed Partnerships (MWP) with CIWM. The MWP is a multi-stakeholder forum established in 1999 to identify and apply innovative management approaches in the Maitland River watershed, a very productive agricultural area in Southwestern Ontario, Canada. These lessons are offered with the purpose of 'grounding in practice' some of the theoretical perspectives on collaboration and integration advanced in the literature, as well as providing relevant insights to practitioners facing similar challenges in Ontario and elsewhere.

### **Evaluating Collaborative, Integrated Water Management**

The role, shape and outcomes of CIWM in different watersheds are influenced by the particular interplay of ecological, social, economic, institutional and political practices in which these watersheds are embedded. Evaluating accomplishments and gaps in multi-stakeholder watershed partnerships can be as daunting and context-dependent as the complex and uncertain issues they are meant to address

Table 1. Evolution of mainstream discourse about collaborative, integrated water management

Characteristics	Period		
	1980s onwards	1990s onwards	2000 onwards
<i>Purpose</i>	Protection of groundwater and aquatic ecosystems	Protection of groundwater and aquatic ecosystems	Maximization of economic welfare and social equity without compromising vital ecosystems
<i>Emphasis for integration</i>	Land and water resources	Land and water interests	Water and national policy sectors
<i>Rationale</i>	Interdependent nature of land and water resources within ecosystems requires a holistic approach to public administration	Interdependent nature of social and ecological systems requires meaningful stakeholder involvement to encourage community ownership of problems and their solutions	Interdependent nature of poverty and environmental degradation requires mainstreaming water in national economies by linking water resources planning to poverty, national security and trade policies
<i>Institutional focus</i>	Intra and interagency coordination at the watershed level	Multi-stakeholder collaboration at the watershed level	Cross-sectoral policy integration at the national level plus coordination and collaboration at the watershed level
<i>Region of influence</i>	<ul style="list-style-type: none"> <li>North America</li> </ul>	<ul style="list-style-type: none"> <li>North America</li> <li>Australia</li> </ul>	<ul style="list-style-type: none"> <li>Developing countries</li> </ul>
<i>Examples in literature</i>	Lang, 1986; Mitchell, 1990; Ramin, 2004	Born & Sonzogni, 1995; Margerum, 1999; Bellamy & Johnson, 2000	GWP, 2000; Jonch-Clausen & Fugl, 2001 (for a critique see Biswas, 2004; Rahaman & Varis, 2005)

(Bellamy *et al.*, 1999; Head, 2005). Conley & Moote (2003) proposed a series of key questions that are useful to clarify different approaches to CIWM evaluation:

- *Purpose of evaluation (why?)*: Justifying or improving the partnership, drawing practical lessons, deriving theoretical models of collaboration, accessing or renewing funding.
- *Team of evaluators (who?)*: Third party evaluation ('neutral'), participatory evaluation ('biased').
- *Object under evaluation (what?)*: Process evaluation (characteristics of process of collaboration), outcome evaluation ('intended' and 'unintended' outcomes of collaboration).
- *Indicators and criteria for evaluation (how?)*: Social, ecological, financial.

It is important to note that partnership evaluation, either by a third party or by stakeholders and facilitators involved in the collaborative effort, can never be truly neutral. 'Success' is, after all, in the eye of the beholder, and multiple stakeholders imply a full range of worldviews and perspectives regarding what a 'successful' partnership entails, how 'progress' should be defined and measured, and what type of scientific knowledge is 'valid' (Gregory & Jackson, 1992; Bellamy *et al.*, 1999). Therefore, evaluation is "inherently normative and inevitably political, for it is a forum where the public image of a collaborative effort is negotiated" (Conley & Moote, 2003, p. 376; Head, 2005). Even when the evaluation is focused on ecological impacts and, therefore, is thought to be an 'objective' activity belonging to the exclusive domain of knowledgeable experts, selection of evaluation criteria and indicators is (consciously or unconsciously) underlined by disciplinary backgrounds, scientific uncertainty, value judgements and pragmatism (Bosshard, 2000; Haag & Kaupenjohann, 2001; McCool & Stankey, 2004). In this regard, the conceptual and methodological lenses that are used for evaluation can reduce issues at the society-environment interface to the set of quantitative indicators and criteria readily measurable according to the available scientific knowledge and technical expertise. Potential social outcomes that can only be assessed with qualitative data are, in general, left out from evaluation efforts that are not part of an academic exercise (Wilson & Buller, 2001). This is also the case for critical long-term ecological outcomes whose evaluation is complicated by the influence of the temporal scale (e.g. time lag between emission of contaminants in recharge areas until their impact on quality of deep aquifers can be seen in regional monitoring data), as well as the spatial scale (e.g. watershed impacts of best management practices implemented in individual farms) (MacFarlane, 2000; Leach *et al.*, 2002; Manale, 2003).

Another consideration regarding different approaches to partnership evaluation is their potential for fostering social learning. Multi-stakeholder watershed partnerships taking an adaptive management approach are not only concerned with monitoring and evaluating their progress vis-à-vis their stated goals and targets, but also with the learning opportunities provided by evaluation (Burke, 1998; Conley & Moote, 2003). This is one of the potential advantages of participatory approaches to evaluation, which are based on the notion that learning is enhanced by experience, or 'learning by doing' (Allen, 1997; Woodhill & Robins, 1998). However, claims of stakeholder 'participation' in evaluation (and other partnership activities) may



actually range from simple consultation up to active involvement in designing and implementing evaluation protocols (Ewing *et al.*, 2000; Parkes & Panelli, 2001).

## Background

### *Study Area*<sup>1</sup>

The Maitland River watershed is located in the Southwestern portion of Ontario, Canada's most populous and economically diversified province (Figure 1). Almost 80% of the 2540 km<sup>2</sup> drained by this watershed is devoted to agricultural production (B. M. Ross & Associates, 1995). As in the rest of rural Ontario, the Maitland River watershed is embedded in processes of agricultural and rural change (Troughton, 1997; Smithers & Joseph, 1999). Production intensification, livestock specialization and corporate farming represent the main sectoral trends in the region (Caldwell, 2001; Keddie & Wandel, 2001). At the same time as the agricultural sector is evolving towards fewer but larger and more specialized intensive operations, the region is becoming an attractive tourist and retirement destination (Cummings *et al.*, 1998). Other key demographic and economic trends are decreasing farm population and increasing rural non-farm developments (Caldwell, 2003; Smithers *et al.*, 2004). As a result of these processes, there is a potential for conflict between competing visions and perceptions of 'rurality' in the watershed, as cottagers and small family farms are confronted with the realities of agricultural industrialization (Smithers & Joseph, 1999; Caldwell, 2001; Ferreyra *et al.*, under review). This potential for conflict is especially visible in current debates and controversies regarding the legitimacy, and

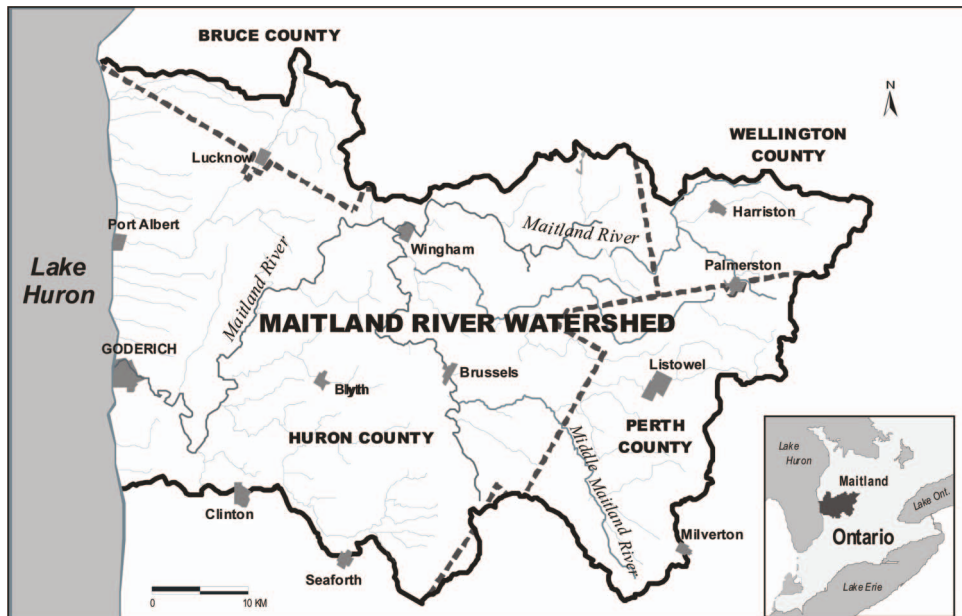


Figure 1. Map of the Maitland River watershed, Ontario, Canada.

even the appropriateness, of large-scale confined livestock operations, as well as new and impending regulations affecting the agricultural sector (Caldwell, 1998; Smithers & Furman, 2003).

Groundwater is the primary water supply source for the majority of the 60 000 watershed residents (Steele, 2003). Most of the rural population depends on private wells for their drinking water (MVCA & SVCA, 2003). Potential threats to the quality of both surface and groundwater resources include intensive agricultural operations, non-conforming septic systems, municipal sewage treatment facilities and urban runoff (B. M. Ross & Associates, 2003). Institutional arrangements for water management in the watershed (and across Ontario) are highly fragmented, with responsibilities divided among several levels of government (Ramin, 2004; de Loë & Kreutzwiser, 2005). The Provincial Government, the main water management actor under Canada's Constitution Act, has allocated this responsibility to its different ministries, such as the Ministry of Environment and the Ministry of Agriculture, Food and Rural Affairs (Kreutzwiser, 1998). The Maitland Valley Conservation Authority (MVCA), one of Ontario's 36 regional agencies created to address natural resource management issues on a watershed basis, has a central function in flood and erosion control, as well as an increasing role in the implementation of land and water stewardship projects in public and private lands (Ivey *et al.*, 2002). Municipalities, ranging in size and capacity, have increasingly been delegated responsibilities regarding water planning and supply (de Loë *et al.*, 2002).

Ontario's water management approach has been under revision since the Walkerton tragedy of 2000, in which seven people died and at least 2300 became ill after drinking municipal water contaminated with *E. coli* (O'Connor, 2002). Integration and collaboration are prominent in the source protection program recently launched in Ontario. According to the Clean Water Act introduced in December 2005, multi-stakeholder committees will be established in watershed regions across the Province to develop source water protection plans. These stakeholders include, among others, municipalities, Conservation Authorities (CAs), the provincial and federal governments, the agricultural sector, businesses, industries and First Nations.

#### *The Maitland Watershed Partnerships*

In May 1999, the MVCA helped establish the Maitland Watershed Partnerships (MWPs), a forum for organizations involved in natural resource management in the watershed to work together on issues of common interest (MVCA, 2003). The rationale was that many organizations involved in natural resource management at the local level lacked the resources required to do so. By sharing financial, technical and other resources, these local service providers would be able to identify and address some of the critical issues in the watershed. The main 'collaborative management' goals of the MWPs are:

- (1) To develop a better understanding of major watershed management issues.
- (2) To build the capacity of local service providers to deal with these issues.
- (3) To build alliances among service providers to deal with these issues.

Initial funding, provided by Human Resources and Development Canada under the Rural Innovations Program, was used to develop and support a collaborative planning process among the representatives of each of the 24 member organizations participating in the MWP. After major watershed issues were identified, representatives were separated in May 1999 into three service teams (Agroecological, Terrestrial and Water) according to organizational interests. Members in each service team worked collaboratively with the support of professional facilitators to develop common visions, strategies and action plans. Technical and administrative support was provided by knowledgeable resource persons, most of them part of the technical staff of the MVCA with natural science backgrounds. At the beginning of 2001, the Agroecological and Water Service Teams merged into the Water Action Team (WAT), which includes 3 industries and businesses, 1 agricultural umbrella group, 5 environmental groups, 4 local agencies and departments, 3 provincial ministries, and 1 department from the federal government (MVCA, 2001). Their mission is “working together to improve water quality and quantity”. WAT members presented the *Strategy and Action Plan* completed in December 2001 to their respective organizations for feedback and support (MVCA, 2001). This strategy identified a series of targets to operationalize the ‘water-related’ goals of the WAT (Table 2), as well as the different actions to be carried out by members. Use of professional facilitation was discontinued in 2002.

At the beginning of 2004, a research partnership was established between the WAT and one of the authors, who was conducting doctoral studies on the challenges and opportunities for CIWM in agricultural watersheds using participatory action research (PAR) as her methodological approach (Ferreyra, 2006a). PAR emphasizes collaboration between researchers and stakeholders in order to identify issues of common interest, and produce and implement knowledge for action (Parkes & Panelli, 2001). The first year of the research partnership was devoted to building rapport, and included Ferreyra attending WAT meetings and collaborating in ongoing projects. By the end of 2004, the General Manager of the MVCA and

**Table 2.** Water-related goals and targets of the Water Action Team of the MWPs (arranged in alphabetic order)

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*Goals*

- Improve water quality
- Reduce runoff, retain soil moisture and improve shallow groundwater recharge

*Targets*

- Average nitrate levels down below 4 mgs/l over next 20 years/Average total phosphorus levels down below 0.03 mgs/l over next 20 years
  - Heavy metals in the Middle Maitland below Listowel to be reduced to meet drinking water standards over the next 5 years
  - Implement key best management practices on 80% of targeted land in the Maitland watershed over the next 10 years
  - To lower *E. coli* levels in all watercourses to recreational swimming limit (100) after 2-year equivalent rainfall (2 inches over 7 hours) in 20 years. To lower pathogens and antibiotics with a public health concern in all the watercourses in the watershed in 2 years
  - To meet the Ontario drinking water standards for all groundwater
  - PCB levels be below aquatic protection limit over the next 10 years
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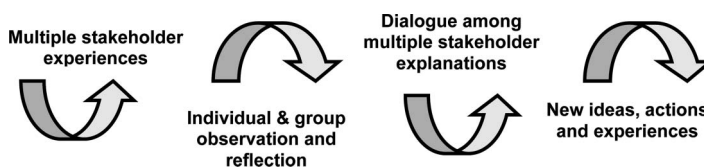
co-author of this paper, requested Ferreyra's collaboration in the evaluation of the 5-year experience of the MWP with CIWM. Although he initially suggested that Ferreyra would collaborate with consultants to be hired for the evaluation, it was finally agreed that we would carry out the evaluation as co-researchers, and that the evaluation would involve a high degree of participation by WAT members and resource persons. The proposed participatory evaluation project was approved by WAT members in the first regular meeting of 2005.

## Methods

The participatory evaluation project was conceptualized as part of a social learning process, in which different stakeholder perspectives and experiences could be shared, reflected upon, and contested (Burke, 1998; Parkes & Panelli, 2001; Bowen & Taillieu, 2004) (Figure 2). The Snyder Model, which draws on systems theory and PAR methodologies to develop critical understandings of how collaborative programs and projects operate (Allen, 1997; Dick, 1997), was selected and adapted as the evaluation model. An evaluation team, comprising the authors, was formed to facilitate cycles of individual and group reflection in two major interrelated evaluation stages:

- (1) *Process evaluation*: Exploring the different perspectives and understandings of WAT members and resource persons regarding the meaning, role, structures and processes of the MWPs.
- (2) *Outcome evaluation*: Selecting indicators and assessing the intended and unintended impacts of the MWPs regarding quality and quantity of water resources in the Maitland River watershed, as well as impacts on member organizations.

In the Snyder Model, the 'process evaluation' is a necessary step before assessing intended and unintended impacts because it is the exploration of current perspectives on the suitability of a partnership 'stated' agenda that provides the standard against which the 'outcome evaluation' can be carried out. This is due to the dynamic nature of inter-organizational collaboration, in which 'actual' partnership agendas are constantly evolving, influenced by rotation of organizational representatives, organizational restructuring, and by changes in the ecological, socio-economic and political contexts (Huxham, 2003). This was particularly relevant in this project, as some organizations were new to the WAT, and many current organizational representatives were not part of the collaborative planning process in 2001, when the



**Figure 2.** Participatory evaluation as a social learning process. *Source:* Adapted from Woodhill & Robins (1998).

*Strategy and Action Plan* was developed. Furthermore, the regulatory context in which members and resource persons of the WAT are currently collaborating in is changing radically as the implementation of source water protection under the Clean Water Act (2006) is unfolding.

### *Process Evaluation*

Between April and June 2005, the evaluation team conducted confidential individual interviews with 25 current and past WAT members and resource persons (first cycle of individual reflection). The interview protocol, which can be found in Ferreyra (2006b), was highly structured in the range of topics for discussion (e.g. WAT goals, targets, actions, resources, communication strategy and membership), but consisted mostly of open-ended questions (Patton, 2002). Data from interviews were aggregated in July 2005 in an internal *Process Group Report*. The aggregation of data focused not only on areas of consensus but, more importantly, on dissenting views. This was because the 'process evaluation' was not intended to force consensus, but rather to provide a 'safe space' in which to explore and contest different understandings of the meaning and role of the MWPs. Furthermore, since the *Process Group Report* was a tool to facilitate group reflection, it did not contain any recommendations from the evaluation team.

Two special meetings were held in July and October 2005 to collectively discuss the *Process Group Report* (first cycle of group reflection). As a result of these meetings, four Working Groups (WG) were formed to address identified issues: (1) Goals & Targets; (2) Membership; (3) Communications; and (4) Monitoring & Evaluation. Finally, the WG Goals & Targets set up a collective *Strategic Planning Session* for December 2005. It was expected that the 'outcome evaluation', by identifying gaps and successes of the partnership, was to play a critical role in the planning session.

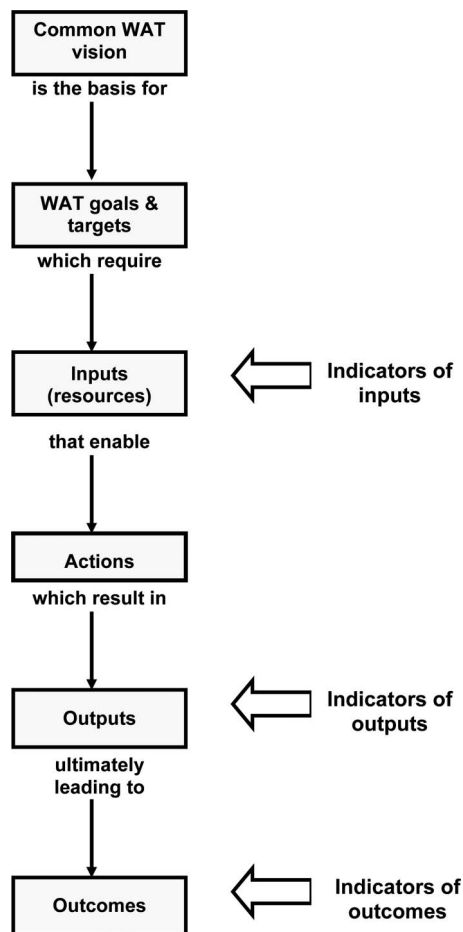
### *Outcome Evaluation*

The 'outcome evaluation' was conducted between October and December 2005. The evaluation team generated a set of evaluation indicators following the model proposed by Woodhill & Robins (1998) (Figure 3).

Ideally, these indicators should have been the result of a collaborative process between WAT members and resource persons. This was not possible due to the following reasons:

- No indicators were negotiated among WAT members and resource persons at the time the *Strategy and Action Plan* was developed in 2001.
- Time constraints of WAT members and resource persons, as well as their 'burnout' from the 'process evaluation' did not allow for group discussion to generate indicators before the *Strategic Planning Session* scheduled for December.

In this context, the evaluation team agreed that evaluation indicators would be offered to the WAT as 'provisional' for the purposes of supporting the *Strategic Planning Session*. However, future monitoring and evaluation cycles would need to



**Figure 3.** Indicators of inputs, outputs and outcomes. *Source:* Adapted from Woodhill & Robins (1998).

be based on a set of criteria to be collaboratively developed by the WAT under the lead of the newly formed Working Group Evaluation.

Input, output and outcome indicators (Table 3) were developed according to insights provided by WAT members and resource persons during the 'process evaluation', as well as by pertinent literature and established practice. During the 'process evaluation', WAT members and resource persons had identified the main role of the MWP to be a forum for information exchange and social learning, rather than a partnership for water-related action. Therefore, special emphasis was given to literature on multi-stakeholder collaboration in order to develop indicators of collaborative management outputs and outcomes. These indicators were intended to operationalize the collaborative management goals of the MWPs (see section on Background), as well as to address a range of relevant issues collectively identified during the 'process evaluation'.

**Table 3.** Indicators for outcome evaluation of collaborative, integrated water management**Indicators of inputs***Initial funding*

- Total amount & allocation

*Partner contributions*

- Cash & in-kind (expertise, time, etc.)

*Additional funding*

- Total amount & allocation

**Indicators of collaborative management outputs***Developing a better understanding*

- Number of ‘learning opportunities’ (workshops, meetings, etc)
- Type of learning opportunities (technical and policy issues, stakeholder perspectives, etc.)
- Attendance at learning opportunities

*Building capacity (technical, collaborative & financial)*

- Generation of technical and social information (data gap projects, watershed surveys, etc.)
- Analysis of information
- Use of techniques for stakeholder collaboration
- Development of common vision and strategy
- Establishment of budget committee and process for project approval

*Building alliances*

- Number of member organizations
- Type of member organizations
- Attendance at regular meetings
- Number of organizations that supported common strategy
- Support for individual organizational initiatives
- Support for other multi-stakeholder initiatives in the watershed
- ‘Ripple effect’ alliances

**Indicators of “perceived” collaborative management outcomes***Better understanding of...*

- ... technical aspects of water management
- ... policy aspects of water management
- ... major watershed issues
- ... factors contributing to major watershed issues
- ... main potential strategies to effect change in the watershed
- ... perspectives of other stakeholders

(Note: all indicators were used at both the individual and organizational levels)

*Increased capacity (technical, collaborative & financial)*

- Increased confidence of individuals to analyze watershed issues
- Increased ability of individuals to constructively disagree with other stakeholders
- Increased ability of individuals to reach agreements
- Increased confidence of individuals to participate in other multi-stakeholder forums
- Increased access of organizations to credible data
- Increased support for organizations to access funding
- Increased ability of local organizations to understand provincial and federal level initiatives
- Increased ability of provincial and federal organizations to understand local issues

(continued)

**Table 3.** (Continued)*Building alliances*

- Development of new long-term work relationships among individuals
- Development of new links among organizations
- Safe forum to test individual organizational initiatives, as well as support, has been provided
- Organizations have collaborated in at least one joint initiative with other organizations in WAT

**Indicators of water-related outcomes***Surface water resources*

- Changes in average levels of *E. coli*, nitrate, total phosphorus, heavy metals and PCBs

*Groundwater resources*

- Changes in levels of contaminants relative to Ontario Drinking Water Standards

'Perceived' collaborative management outcomes were determined using a survey with one indicator question for each indicator of collaborative management outcomes, both at the individual and organizational levels (second cycle of individual reflection). The response rate of the 24-question survey, available in Ferreyra (2006b), was 60% (15 of 25 WAT members and resource persons). Water-related outcomes were assessed through meetings held between the evaluation team and WAT resource persons responsible for water monitoring data at the MVCA. An internal *Outcome Group Report*, produced in December 2005 and summarizing indicators of inputs, outputs and outcomes, was presented and discussed as part of the agenda of the *Strategic Planning Session* (second cycle of group reflection).

*Synthesis of Lessons*

As mentioned above, the main purpose of the project was to provide a safe space for multi-stakeholder reflection in order to produce contextualized, locally relevant knowledge and improve partnership praxis (Elden & Levin, 1991). This implied that while some evaluation findings would be reported in different ways and for different audiences, confidential information was to remain within the boundaries of the WAT. The latter was critical for the success of the participatory evaluation in enabling change and creating motivation, since cycles of individual and group reflection brought out to the open internal frustrations, dissenting views, and even harsh critiques (Ferreyra, 2006a). However, it was also recognized by all involved that the 5-year experience of the MWPs with CIWM could also provide valuable insights to others outside the WAT. These insights were particularly timely in Ontario, as integration and collaboration were prominent in the ongoing source water protection process advanced by the Clean Water Act. In this context, it was agreed that the evaluation team would synthesize the main insights generated in the participatory evaluation into two 'lessons learned' reports that were to be shared with a broader audience, mostly in Ontario (Ferreyra & Beard, 2005, 2006).

Lessons learned were synthesized by the evaluation team using thematic analysis (Patton, 2002). For the 'process evaluation', lessons were derived from common themes that emerged during individual interviews, and whose relevance was collectively validated during the first cycle of group reflection (e.g. lack of a

common understanding of the science behind water-related targets). Other themes that emerged only in a few interviews, but had far-reaching implications in regards to the stated meaning and role of the partnership, were also considered (e.g. ownership of organizational versus partnership actions). For the 'outcome evaluation', selected themes mostly related to the difficulties faced by the evaluation team during this stage of the evaluation (e.g. lack of monitoring data for water-related outcomes, lack of negotiated indicators for evaluation). Although these themes were initially identified by the evaluation team, their relevance for the group was validated during the second cycle of group reflection, especially in the case of themes reflecting the critical importance of determining both outputs and outcomes in evaluation efforts, as well as considering both individual and organizational levels for social outcomes.

Beyond the Snyder Model, no one explicit theoretical perspective on CIWM was used during the participatory evaluation. Insights reported in the lessons are the result of individual and group reflection. Thus, they represent an emergent framework of CIWM 'grounded' in collaborative practice, and influenced by the 'situated' individual perspectives, experiences, knowledges and histories of each participant in the project (Partington, 2002; James & Vinnicombe, 2002).

## Results and Discussion

This section presents the main lessons learned during the participatory evaluation of the MWPs to help highlight areas for consideration to practitioners of CIWM in Ontario and elsewhere. By establishing a dialogue with relevant literature addressing similar questions or contexts (Eden & Huxham, 1996; Herr & Anderson, 2005), the authors believe these lessons help 'ground in practice' and extend some of the theoretical perspectives on collaboration and integration advanced by researchers working on sustainable agriculture, water management and organizational research. These theoretical perspectives are briefly explored as part of the discussion of each of the 10 lessons.

### *1. Define both Technical and Collaborative Management Targets*

Watershed partnership strategies, in general, reflect the inherent tension of CIWM as both a technical and a social process (Rhoads *et al.*, 1999; Haag & Kaupenjohann, 2001; Delli Priscolli, 2004):

- *CIWM as a technical process*: Science and engineering aspects of managing and protecting surface and groundwater resources.
- *CIWM as a social process*: Multiple legitimate and often conflicting values and perspectives of different stakeholders.

The WAT addressed this tension by adopting long-term collaborative management goals (building capacity, creating alliances and developing a better understanding), and by establishing water-related ones (improving water quality and reducing runoff). These different types of goals have the potential to integrate the 'technical' and the 'social' in water management. According to WAT members and resource persons, collaborative management goals are not only important for partnership



sustainability, but they are also the building blocks from which positive impacts on water quality and quantity can be pursued. Yet the WAT team did not operationalize these goals by setting specific targets, as they did with their water-related goals (Table 2). The 'process evaluation' highlighted that collaborative management should not be thought of 'as a given' in a watershed partnership, and that targets making explicit what the specific outcomes of collaborative management in a particular context ought to be, are needed (Leach *et al.*, 2002; Freebairn & King, 2003). However, it was also emphasized that defining and agreeing upon concrete and 'measurable' collaborative management targets poses significant challenges, as they belong to the messy, qualitative and fuzzy realm of human relations (Bellamy *et al.*, 1999; Innes & Booher, 1999; Ross *et al.*, 2005).

In order to address this challenge, the 'process evaluation' identified the various roles that the partnership had actually played for each member organization (e.g. action-oriented partnership, forum for information exchange, multi-stakeholder advisory committee). Through group discussion and reflection, it was agreed that the future role of the WAT would be to act as a forum for social learning and collaborative action for water protection. This dual role is currently being operationalized into specific indicators and targets by the Working Group Goals & Targets, with the support of the Working Group Monitoring & Evaluation.

## 2. Integrate Different Types of Knowledge

Watershed partnerships are formed by multiple stakeholders with different values, perspectives and experiences. A critical factor during the collaborative planning stage is achieving a balance and taking advantage of the different types of knowledge and expertise (scientific, experiential, contextual, formal, informal, etc.) available in a partnership (Rhoads *et al.*, 1999; Ewing *et al.*, 2000; Bowen & Taillieu, 2004; Delli Priscolli, 2004). Scientific knowledge and technical expertise, albeit highly relevant for CIWM (Leach *et al.*, 2002), should not dominate and determine the end result of the collaborative planning process (Freebairn & King, 2003; Eshuis & Stuver, 2005).

The approach taken by the WAT to address the tension between scientific vs. nonscientific knowledge (e.g. experiential, contextual) was to establish a partnership structure in which technical staff was assigned a supporting role in the collaborative planning process, with individual staff members acting as 'resource persons'. It was the representatives of each organization, the 'WAT members', who were to define the strategy and plan of action, as well as provide contextual and experiential knowledge. However, the process evaluation revealed that this approach did not allow for the meaningful interplay between scientific and nonscientific knowledge. Goals and targets, established under the guidance of resource persons with highly appreciated technical expertise, were mostly informed by their scientific knowledge (Eden, 1996; Ewing *et al.*, 2000). Although after five years of collaboration these goals and targets were still recognized as 'valid' by WAT members, many members remain unclear about key issues such as the meaning and relevance of contaminant levels and time horizons in each target (Table 2), which were perceived somehow as alien to them (Margerum & Whitall, 2004). Furthermore, targets were restricted to the technical expertise available in the WAT at the time of the collaborative planning process, which was, unsurprisingly, strong in natural sciences, but lacking

in socio-economic fields. Resource persons also reflected on the difficulties posed by the specificity of their role as just 'providers' of scientific knowledge, which did not allow for their meaningful involvement in the partnership.

To overcome this challenge, the *Strategic Planning Session* of December 2005, originally held to refine WAT goals and targets, was carried out as a collaborative effort in which all parties involved, members and resource persons, participated on an equal basis. An important part of the session was the presentation of the results of the 'outcome evaluation', which clearly identified uncertainties and weaknesses of the science behind water-related targets and available monitoring data. Exploring the limitations of scientific information in a candid way helped overcome, at least momentarily, the 'technical expertise' power differential between members and resource persons.

### 3. Develop Collaborative Advantage

One of the basic premises of watershed partnerships is that collaboration enables a group of organizations to pursue goals that could not be achieved by organizations working alone (Michaels *et al.*, 1999; McQuaid, 2000). By pooling skills and resources, sharing information, and learning about their different perspectives, it is assumed that organizations in a partnership can take advantage of 'partnership synergy', strengthening their capacity to address complex water issues in more innovative and cost-effective ways (Lasker *et al.*, 2001; Huxham, 2003). The MWP's were formed under these same premises. They were established because many of the diverse set of organizations involved in natural resource management at the local level (e.g. Environmental non-governmental organizations, community groups, local and provincial governmental agencies, businesses) lacked some of the resources required to do so.

Results from the 'process evaluation' highlighted that, in order to achieve partnership synergy, 'collaborative advantage' for all member organizations should first be created or enhanced (Huxham, 1996; Scott, 1998). This involves working to develop and emphasize benefits not only for the partnership as a whole, but also for every individual and organization involved (e.g. access to credible data, learning opportunities, support for individual initiatives, local relevance, etc). Although most WAT members assigned some value to belonging to an environmental stewardship initiative that aimed to improve water quality and quantity, the strong agricultural and inland focus of the WAT was relevant to the mandate and priorities of only a few member organizations. This prevented some partners from actively engaging and collaborating in partnership activities, which were usually related to agricultural best management practices and did not, therefore, represent a direct benefit to them. Therefore, in the case of agricultural watersheds such as the Maitland, developing collaborative advantage includes setting a holistic strategy that addresses not only the issues that are relevant for the key agricultural sector, but also invests the always-scarce resources in urban, industrial and other issues.

One example of working to develop collaborative advantage for different organizations in an agricultural watershed is the Lake Huron Stewardship Guide (Leal *et al.*, 2006). The guide is the result of a collaborative effort by a multi-stakeholder partnership in Huron County, a very productive agricultural area in Southwestern Ontario. Drawing inspiration from the Ontario Environmental

Farm Plan, the guide is a self-assessment tool of environmental performance for non-farm property owners along the coastline.

#### *4. Build Inter-organizational Leadership*

Watershed partnerships need resources to improve water quality and quantity, and to build and sustain stakeholder collaboration. These resources include connections and networks; information and knowledge; inter-organizational leadership; legitimacy and credibility; money; space and equipment; skills and expertise; and time (Margerum, 1999; McQuaid, 2000; Lasker *et al.*, 2001; Smith & Gilden, 2002). The 'process evaluation' of the MWP identified 'inter-organizational leadership' not only as the most important resource, but also as the resource that can act as a bridge to other resources (Agranoff & McGuire, 2001). According to WAT members and resource persons, leadership allows a partnership to draw from stakeholders' connections and networks, providing access to relevant knowledge and information as well as skills and expertise. Leadership is also important to secure funding, time and space and equipment necessary to co-ordinate and implement collaborative water projects. Furthermore, inter-organizational leadership is a critical source of legitimacy and credibility, a pre-requisite before establishing a watershed partnership. Once the partnership is established, its success will affect the future legitimacy and credibility of partnership leaders.

What are some of the characteristics of the leadership style that enables collaboration among various organizations in a facilitative and supportive manner? According to the 'process evaluation', inter-organizational leadership requires an effective but at the same time democratic leadership style that empowers participants to respectfully engage during discussions, allowing for constructive disagreement to enrich both dialogue and action. Addressing this inherent tension between the nurturing and steering functions of leadership in network settings, "the need to lead when you are not in charge" (Agranoff & McGuire, 2001; Vangen & Huxham, 2003, p. S71), requires strong technical but even stronger interpersonal skills (Margerum, 1999; Lasker *et al.*, 2001). The challenges of inter-organizational leadership are amplified when it is assumed that organizations engaging in multi-stakeholder collaboration will be willing or have the capacity to lead if provided with the opportunity to do so. In the case of the MWPs, although most WAT members ranked 'leadership' as the most important resource during the 'process evaluation', only a few of them have been willing or able to provide this resource to the partnership.

#### *5. Clarify Ownership of Actions*

Watershed partnerships are generally comprised by a diversity of organizations from the public, private and civil society sectors. These stakeholders bring to a partnership a broad range of perspectives, resources and ideas to (ideally) better address complex water management issues, among many other motivations (Michaels *et al.*, 1999; Scott, 1998; McQuaid, 2000; Huxham, 2003). After a common purpose is established, and agreement on goals and targets is reached, collaborative actions are planned and put into practice. Coordination of actions among individual organizations in a partnership helps to avoid duplication and wasting of scarce

resources (McQuaid, 2000). Meanwhile, member organizations may continue developing and implementing their own individual water-related actions, as well as collaborating in those of other multi-stakeholder initiatives in which they may also be members. In this context, the watershed partnership can provide them with additional resources, such as new perspectives, increased legitimacy, and better possibilities for securing funding (Michaels *et al.*, 1999; Lasker *et al.*, 2001).

The dynamic interaction between member organizations and the watershed partnership they belong to contributes to the challenges of collaboration (Vangen & Huxham, 2003). Results of the 'process evaluation' highlighted the importance of negotiating ownership and clarifying boundaries between partnership actions and those actions of individual organizations. For example, if one organization developed a project and provided most of the resources for implementation, while the WAT as a group provided guidance and letters of support, can this be considered a WAT action, or only an action of that individual organization? 'Taking the credit' of actions and clearly identifying organizational contributions to partnership activities are particularly relevant for organizations from the public sector, as these relate not only to their 'organizational mandates' but, more importantly, to their 'organizational survival' (Hooper *et al.*, 1999; Margerum, 2001). According to the 'process evaluation', clarifying ownership and identifying organizational contributions becomes especially significant when communicating partnership actions to the broader community in the watershed.

To address this challenge, it was agreed during the *Strategic Planning Session* of December 2005 that the WAT should focus its actions not on the watershed but in sub-units of smaller scale, such as sub-watersheds or communities of interest. After these sub-units were identified and prioritized, the different Working Groups of the WAT would facilitate the development of a set of specific and locally-relevant secondary targets. An action plan that clearly identified how progress was going to be measured for each target would also be developed.

#### 6. Design Communication Strategy

Communication is one of the main building blocks of watershed partnerships, as effective communication is essential for stakeholder interaction and group building (Lasker *et al.*, 2001). Communication presents a particular set of challenges at the inter-personal, inter-organizational and community levels (Margerum, 1999; Scott, 1998; von Wiren-Lehr, 2001; Vangen & Huxham, 2003; Delli Priscolli, 2004), which in the case of the WAT include:

- *Inter-personal level*: Communication among geographically dispersed individuals of different personal and professional backgrounds, styles of communication, and types of expertise.
- *Inter-organizational level*: Communication between the WAT and its member organizations beyond personal interaction among organizations' representatives in regular meetings.
- *Community level*: Communication with the broader 'watershed community' with one common message that can represent various organizations with different cultures, constituencies and mandates.

The 'process evaluation' highlighted the importance of designing a multi-level communication strategy that can address each different set of challenges. Although meetings provided a forum for WAT members and resource persons to explore complex watershed issues in a non-confrontational manner, keeping communication flowing beyond the inter-personal level was found to be problematic. Suggestions on how to improve communication between the WAT and individual organizations were limited, as there are time constraints and many meetings to attend. However, it was communication outside the boundaries of the partnership that posed the most significant challenges. When communicating at this level, a partnership of organizations with different cultures, constituencies and mandates, requires a collaborative communication strategy in which the content of the common message to be communicated, as well as the target audiences, are previously clarified and agreed upon before any communication action is undertaken. This is particularly relevant when communicating through the media on controversial issues, such as the emerging source water protection planning process in Ontario. In this case, the input provided by the WAT as a whole will probably differ from that of individual member organizations. A mechanism to deal with this potential source of conflict, therefore, is required.

A project to identify strategies to enhance communication between different groups and organizations is currently undergoing in the area (Caldwell, 2005). This project, which aims at addressing sources of conflict between agricultural and cottager groups, is based on the use of storytelling as an alternative means for fostering communication. The underlying assumption is that sharing personal stories and vignettes in planning settings can lend a human face to controversial water quality issues and provide for the discussion of embedded meanings and values, a necessary step to dealing with conflict.

#### *7. Address the Difference between Outputs and Outcomes*

The WAT recognized the importance of establishing an evaluation system for CIWM that takes into consideration not only the quality and quantity of water resources in the Maitland River watershed, but also the quality and quantity of inter-organizational alliances, capacity and knowledge of each partner organization (Head, 2005). A crucial step for the evaluation was making the distinction between 'outputs' and 'outcomes' (Woodhill & Robins, 1998; Kenney, 2000; Wilson & Buller, 2001). Therefore, achieving progress towards goals and targets was assessed according to the level and type of partnership activities or outputs (e.g. number of demonstration projects, percentage of adoption of best management practices (BMPs), etc.), and more importantly, to the actual impacts or outcomes (e.g. increased organizational knowledge, improved water quality, etc.).

The approach taken to address the issue of collaborative management outputs vs. outcomes was to design a survey for past and current WAT members and resource persons. This survey contained a set of questions that operationalized the collaborative management goals of the partnership (Table 3). Thus, it was the representatives of each member organization, as well as resource persons, who were to define the level of progress, if any, accomplished by the WAT (perceived outcomes) (Conley & Moote, 2003; Head, 2005). Differentiating between outputs



and outcomes allowed WAT members and resource persons to gain a deeper understanding and appreciation not only about the different kinds of successes (Table 3), but also about the kind and level of expectations the partnership could potentially fulfill (Bellamy & Johnson, 2000; Curtis *et al.*, 2002). This is particularly relevant in agricultural watersheds, as agricultural stakeholders are generally action-oriented (Rickenbach & Reed, 2002), and the emphasis on process in watershed partnerships, together with the necessary long timeframes to produce tangible ecological outcomes (Leach *et al.*, 2002; Ross *et al.*, 2005), can lead to frustration.

#### *8. Negotiate Indicators for Evaluation among Stakeholders*

One of the crucial steps when designing and implementing an evaluation system for watershed partnerships is deciding which set of indicators should be used to monitor and assess progress (Leach *et al.*, 2002; Conley & Moote, 2003). Traditionally, indicators are selected by the team of evaluators with the assistance of knowledgeable scientific and technical experts (McCool & Stankey, 2004). In some cases, partnership stakeholders are consulted in order to determine ecological and social components that are important to them. Selecting evaluation criteria may have technical and pragmatic connotations, but it is fundamentally a process with normative and political foundations (Bosshard, 2000; Conley & Moote, 2003; McCool & Stankey, 2004). As watershed partnerships bring together multiple stakeholders with a diversity of goals, values and expectations, there will also be different perspectives regarding what a 'successful' partnership entails, what type of scientific knowledge is 'valid', and how 'progress' should be measured (Gregory & Jackson, 1992; Bowen & Taillieu, 2004; Ross *et al.*, 2005). Furthermore, "indicators are most often context, purpose and scale dependent" (Bellamy *et al.*, 1999; Freebairn & King, 2003, p. 224). Therefore, consultation is just not enough.

Although learning about and negotiating a set of indicators is a complex, value-laden and time-consuming process (Bowen & Taillieu, 2004; Eshuis & Stuver, 2005), an evaluation system based on previously discussed and agreed upon indicators can provide a measure of success that is, if not fully representative, at least more legitimate (Bellamy *et al.*, 1999; Freebairn & King, 2003). This has been recognized by the WAT, which used a participatory approach to evaluate their 5-year experience with CIWM. Although in this first evaluation cycle provisional indicators for outcomes were selected by the evaluation team (see Methods), a Working Group on evaluation has been formed within the WAT to explore and agree on the specific set of criteria to be used for future monitoring and evaluation cycles.

#### *9. Consider the Individual and Organizational Levels for Social Outcomes*

Watershed partnerships are generally composed of a range of stakeholder organizations, which designate individual representatives for a Steering Committee that will develop a common vision, negotiate goals and targets, and agree on an action plan. One of the underlying assumptions in this approach is that representatives will act as 'bridges' between the partnership and their respective organizations, ensuring



two-way communication in order to realize the potential benefits of collaboration (Manring, 1998; Margerum, 2001; Huxham, 2003). However, results from the 'outcome evaluation' have shown that the role of organizational representatives in developing links between partnership and member organizations cannot be taken for granted. The collaborative management survey (Table 3) indicated that although individual representatives had learned about complex watershed issues, increased their collaborative capacity, and established long-term working relationships, the same cannot be said for most member organizations. It was increasing organizational knowledge and capacity, as well as strengthening inter-organizational alliances, which were ultimately the premises under which the partnership was created (Vangen & Huxham, 2003). This important insight was established through survey questions that made the distinction between the individual and the organizational levels when evaluating CIWM (Bellamy & McDonald, 2005).

As a result of the 'outcome evaluation', past and current members and resource persons became aware of the critical importance that their efforts (or lack thereof) in communicating back and forward between the WAT and their respective organizations have in achieving the common vision they helped define (Manring, 1998; Margerum, 2001; Vangen & Huxham, 2003). In order to address this challenge, a Working Group for communications has been established to explore the different approaches that will be needed to effectively reach each different member organization within the WAT, as well as to collaborate with the Working Group Membership in developing orientation materials for new members.

#### *10. Consider the Spatial Scale for Ecological Outcomes*

Watershed partnerships generally establish a common vision based upon a wide range of stakeholder values, perspectives and expectations. This vision forms the foundation from which specific goals and targets are defined and negotiated, and influences the set of indicators that can be used to assess progress. In 2001, the WAT operationalized its water-related goals by setting targets with specific levels of bacteria, nutrients, PCBs and heavy metals to be achieved in watershed streams in 10 to 20 years (Table 2). Desired contaminant levels for groundwater were those defined by Ontario's Drinking Water Standards. Water quality data provided by provincial and municipal monitoring programs were to be used to monitor progress.

Achieving progress toward the WAT long-term vision for the Maitland watershed depends on the activities of all watershed residents, including businesses, farmers, rural residents, and local governments (Manale, 2003). Progress is also influenced by different policies and programs (or lack thereof) implemented by the provincial and federal governments. Meanwhile, the actions of the WAT are highly localized (e.g. BMPs at the individual farm level), or have an 'advisory' nature (e.g. partnership support for rural water quality initiatives). Localized on-the-ground projects and advisory actions may indeed contribute to improving water quality in a watershed. However, monitoring systems designed to indicate current status and major quality trends in the Maitland watershed cannot provide an indication of the actual impacts that these actions have on the quality of water resources. In this context, it is not possible to establish a direct causal link between WAT actions and the quality of

water resources in the watershed (Bellamy *et al.*, 1999; Wilson & Buller, 2001; Leach *et al.*, 2002). Furthermore, monitoring outcomes of agri-environmental initiatives at the watershed level is surrounded by scientific uncertainty (Weersink *et al.*, 1998; von Wiren-Lehr, 2001; Manale, 2003).

To overcome this challenge, it was agreed that the Working Group Evaluation would focus on developing evaluation criteria that could account for the influence of scale and better reflect the potential contributions of the WAT to their broad, long-term vision for the watershed. An important source of information for the Working Group would be provided by a new initiative of Greencover Canada, a program of Agriculture and Agri-Food Canada to help agricultural producers protect water quality, reduce greenhouse-gas emissions and enhance wildlife habitat. In 2006, Greencover Canada funded 10 on-farm demonstration projects across Ontario to measure the performance of best management practices on a watershed basis, among other things (AAFC, 2006).

### **Concluding Remarks**

The beginning of this paper highlighted that the role, shape and outcomes of CIWM in a particular locale are influenced by ecological, social, economic, institutional and political contexts. The lessons presented in this paper synthesize insights emerging from the participatory evaluation of the 5-year experience of the MWPs. To a certain extent, the challenges they faced are the challenges advanced by mainstream CIWM discourse about multi-stakeholder collaboration and integration in Australia and North America (Table 1). However, they are unique because they represent CIWM as experienced by WAT members and resource persons in the Maitland River watershed. Although it is recognized that these lessons are particularly relevant to the Maitland watershed and Ontario, the authors believe they provide valuable insights to practitioners of CIWM in other watersheds, especially in the developed world.

Multi-stakeholder collaboration and integration, as suggested in the literature and highlighted by the experience of the MWPs, is about learning how to cope with and take advantage from difference, diversity and divergence. Watershed partnerships are arenas in which different types of knowledges and experiences, diverse values and expectations, and divergent sectoral perspectives, are continuously confronted, (re)aligned and contested. In this context, inter-organizational leadership is essential to develop and sustain collaborative advantage among public, private and civil society actors and organizations, with their associated political, ethical and socio-economic imperatives. However, according to the experience of the MWPs, embracing difference, diversity, and divergence should go well beyond initial planning stages. Instead, pursuing compromise and agreement should also be at the forefront during the monitoring and evaluation stages. Negotiating indicators for monitoring and evaluation that can address water management both as a social process and a technical process is critical, as is making the distinction between partnership outputs and partnership outcomes. Thus, participatory evaluators are not 'experts' but facilitators of self-reflection and self-evaluation, helping create 'safe spaces' for stakeholder dialogue and social learning that neither deny disagreement nor are built upon shallow consensus.

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### Notes

1 A complete characterization of the Maitland River watershed can be found at [http://www.uoguelph.ca/gwmg/wcp\\_home/Pages/M\\_home.htm](http://www.uoguelph.ca/gwmg/wcp_home/Pages/M_home.htm)

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