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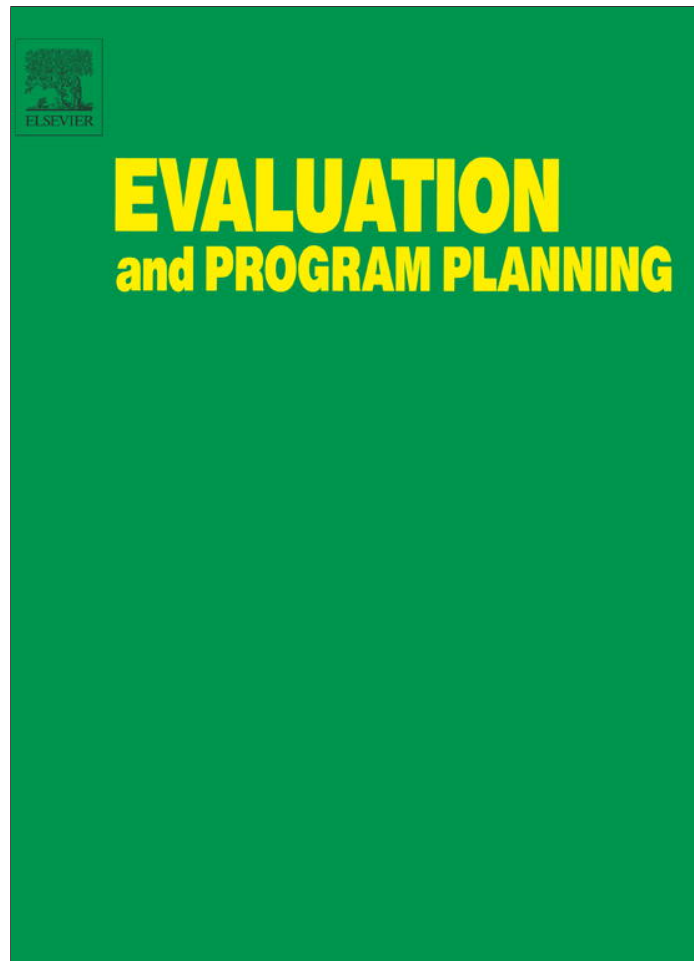
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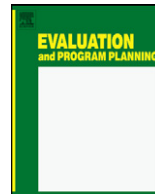
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## The design of a contextualized responsive evaluation framework for fishery management in Benin

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### ABSTRACT

The main question addressed by this article is how to adapt the responsive evaluation (RE) approach to an intervention context characterized by repetition of ineffective interventions, ambiguous intervention action theories among stakeholders, and high complexity. The context is Grand-Popo, a fishing municipality located on Benin's southwest Atlantic coast. The fishery management interventionists and the fishing communities in the municipality all espoused concern for the sustainable improvement of fishing actors' livelihood conditions, but differed about the reasons for this livelihood impairment, and about what should be done, when, where, and by whom. Given this ambiguity, we identified RE as a promising action research approach to facilitate dialogue and mutual learning, and consequently to improve stakeholders' ability to resolve problems. However, this approach seems to have some shortcomings in the Grand-Popo context, regarding the repetitive ineffectiveness of interventions, high complexity, and uncertainty. Therefore, based on our empirical study, we add three dimensions to the existing RE framework: historical analysis to deal with routine interventions, exploration and discussion of incongruities of action theories to trigger double-loop learning, and system analysis to deal with complexity and uncertainty. This article does not intend to address the implications or impact of this adapted RE framework. Instead, we suggest some criteria and indicators for evaluating whether the proposed amended RE approach has assisted in resolving the fishery problems in Grand-Popo after the approach has been applied.

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### 1. Introduction

Grand-Popo is a fishing municipality and a Ramsar site (Ramsar site 1017, i.e. a wetland of international importance) on the coast of south-western Benin (Ramsar, 2007; see Fig. 1). Since about the 1950s, fishing communities in this area have been experiencing fish stock depletion and degradation of their livelihoods, without being able to benefit from relevant interventions (Kouévi, Mierlo, & Leeuwis, 2011). Indeed, most of these communities live on islands and depend mainly on fishing for their income and food security. Others live beside rivers, marshlands, and the sea, and have alternative income-generating opportunities—often threatened,

however, by floods, erosion, and limitations in trade opportunities (Appretectra, 1995; Dagnon-Prince et al., 2004).

Before the 1950s, these fishing communities had better fishing, trading, and living conditions because of the better respected fishing rules and because of a wharf dating back to colonial times that facilitated international trade from Benin (Association Nonvitcha, 1987; Interviews, 2007–2011; Pliya, 1980). Due to coastal erosion (before 1950), coastal erosion threats (to date), the relocation of the wharf and port activities to Cotonou (85 km from Grand-Popo) in the 1960s, the decolonization process, and the absence of strong institutions to make fishing rules respected, fishing activities started declining in Grand-Popo (Interviews, 2007–2011; Pliya, 1980). This decline in livelihood conditions has been exacerbated by unsustainable management practices like deforestation, pollution, and overfishing as well as the construction of the hydroelectric dam *Nangbéto* upstream in Togo, that have jointly been damaging the fishery ecosystem in Grand-Popo (Association Nonvitcha, 1987; Dagnon-Prince et al., 2004; Interviews, 2007–2011; MEHU, 2001; Ouali, 1995; Tomety et al., 2001). The water system is more and more silted up (with mud and sand)

Abbreviation: RE, Responsive evaluation.

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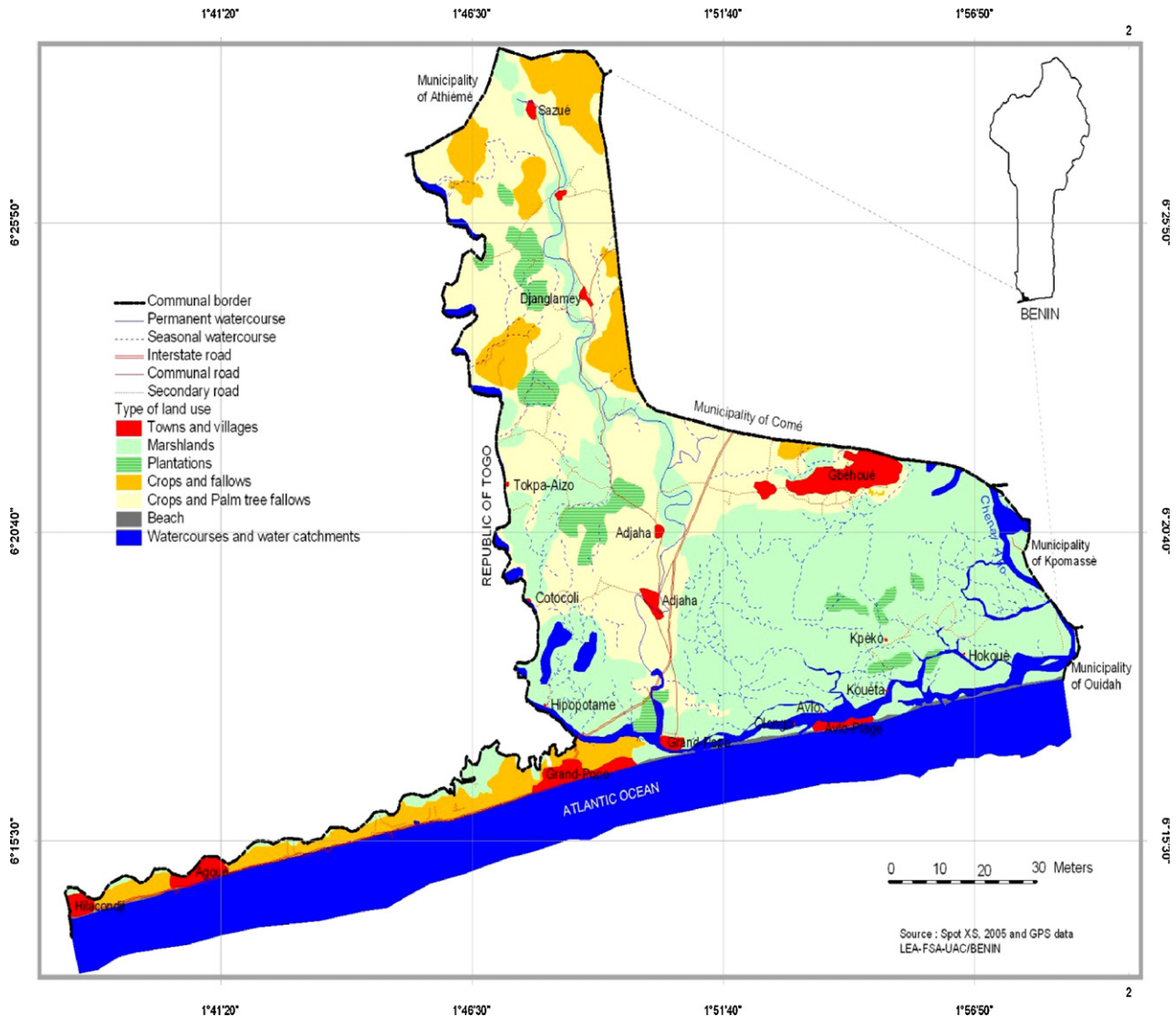


Fig. 1. Map of Grand-Popo.

because of pollution and erosion, and consequently the living and reproduction shelters of fish stocks are more and more restricted (Interviews and observations, 2007–2011). The diversity of fishery resources has been severely depleted. This diversity had previously been self-regulated by the continuum river–lagoon–sea (see Fig. 1) and is currently disturbed by siltation and floods (Association Nonvitcha, 1987; Interviews and observations, 2007–2011; Pliya, 1980). Indeed, because of the dam and the siltation of the river, the lagoon, and the delta, there is less and less salt in the lagoon, and brackish aquatic resources, for instance, have become rare (Interviews and observations, 2007–2011). In the words of one fisherman:

... There are two kinds of 'éhoué'<sup>1</sup>: the one in the sky [i.e. the sun], and the one down below [i.e. the fishes]. Both should not see each other. As the water is silted, the fishes are getting more and more in contact with the sun, and therefore disappearing for other destinations ...

... While talking of fish, not all fish reproduce in water. There are some fish that reproduce in sea and migrate in water via the delta, like the 'Owétin' [mullet]. Fish that reproduce in water are 'Akpavi' [tilapia] and 'Edinhoué' [catfish] ...

<sup>1</sup> Ehoué means both fish and sun in the local language Popo or Xwla.

To emphasize the importance of the brackish water for the existence of the fishing communities, one woman fish wholesaler and salt producer said:

... There is nothing in sweet water ... It's 'Djessin' [brackish water] that sweetens our life ...

Interventions to reverse this fishery resource degradation and livelihood impairment have since the 1950s consisted mainly of the design and implementation of intervention policies for diversification of income sources and for sustainable fishery management practices (Interviews, 2007–2011; MPDEAP, MEF, & MAEP, 2007; PADMOC, 2001; PADPPA, 2004; PAMR, 1989; PDRIM, 1990). Earlier research has shown that these interventions have repeatedly had very little effect because of their failure to address the core causes of the fishery problems (Kouévi et al., 2011). Those causes relate, among other things, to the lack of respect of fishing and sustainable management rules and to a lack of alternative income sources for all fishery dependents. Kouévi et al. (2011) attributed the reasons for the repetition of the ineffective interventions to the repeated discrepancy between interventionists' espoused and in-use action theories despite generations of interventions, and to the absence of double-loop learning interactions among the fishery management stakeholders.

Double-loop learning seems to be required to increase the match between espoused and in-use action theories because of the mental awkwardness and feeling of need for change from which it derives (Argyris & Schön, 1976, 1996) and thus to increase the effectiveness of interventions. Such learning among the fishery management stakeholders of the study area may help them feel the urgency and the relevance of the need for improvement of the fishery interventions.

The present article focuses on the question of how to deal with this absence of double-loop learning interactions among fishery management stakeholders (i.e. interventionists and fishing community members) in Grand-Popo. It builds on empirical investigations on the learning conditions prevailing in the study context. The research was conducted for the purpose of seeking ways out of the vicious cycle of the failing fishery management interventions. To this end, we have turned to responsive evaluation (RE) approach which needed some refinements to adapt to the study context. RE is, indeed, a qualitative and participatory method concerned with the facilitation of dialogue, learning, and improvement in practice among stakeholders in intervention contexts characterized by ambiguity and power differences (Abma, 2005a, 2005b; Stake, 1975), like the context of Grand-Popo, as we will see later in Section 3. Thus, this article is essentially a study with methodological implications in which we consider RE critically in the light of the empirical understanding generated about the study context. The major outcomes of this study are methodological refinements to make RE better suited to the study context, but which at this stage are not yet field tested.

The following section presents the research background and methods, followed by a presentation of the main characteristics of the fishery management context (Section 3). Then responsive evaluation and its relevance for the case are introduced (Section 4), after which its limitations for the Grand-Popo intervention context are explored. This leads to suggestions about adapting RE. We propose the main criteria and indicators to be used to assess the performance of the adapted RE (Section 5), and end with some concluding remarks (Section 6).

## 2. Background and research design

### 2.1. Objectives and justification

In this article, we aim to investigate the extent to which conditions for learning prevailing in the Grand-Popo study context are relevant to the implementation of an RE approach, and the adaptations needed to suit the case study. Our concern with these objectives stems from the ideas according to which evaluation as well as learning facilitation approaches should respond to contexts (Leeuwis, 2004; Samuels & Ryan, 2011; Stufflebeam, 2001; Taylor, 2003). According to authors defending these ideas, different people could have different learning preferences (Leeuwis, 2004; Taylor, 2003) and different cultures could require different approaches to evaluation (Samuels & Ryan, 2011). Evaluators as well as interventionists need to pay attention to specificities if they are concerned with utility and responsiveness. Thus, building on this idea of the need to contextualize evaluation approaches, we investigate the characteristics of the evaluation context of fishery resource management in Grand-Popo and thus the evaluation requirements, and then suggest an evaluation design to deal with that context. Before presenting the research findings and describing the adapted RE approach, we discuss in the following sections why we consider learning, and especially double-loop learning by the fishery stakeholders, as central to the improvement of the interventions in practice. Afterwards, we present the conditions for learning that were investigated and how we did so.

### 2.2. Importance of double-loop learning for improvement in practice

Building on the variety of existing literature, we define learning as an active process of exposure to learning conditions; selection and integration/reintegration of new factual, causal, contextual, methodological, theoretical, or epistemic knowledge, skills and/or attitudes to one's existing knowledge, skills, and attitude stocks (Argyris & Schön, 1976; Blackmore, 2005, 2010; Leeuwis & Pyburn, 2002; Taylor, 2003). In interactional settings such as formal schools or daily life, humans are challenged to learn in order to reach a given goal. The learning interactions could relate humans to humans or humans to objects or phenomena.

In (learning) interactions, learners select information deliberately or intuitively and integrate it into their knowledge, skills, and/or attitude stocks (Argyris & Schön, 1976, pp. 18–19; Taylor, 2003). The desirable information selected by the learners can concern the record of facts/phenomena (what and/or who?), the reasons behind the facts/phenomena (why?—causes and consequences), the strategies engaged in the facts/phenomena (how?) and the conditions in which the facts/phenomena are observed (when? where?—constraints and opportunities). When the selected information focuses on strategies for realizing pre-existing goals, and does not call into question underlying assumptions and phenomena, the learning is qualified as single-loop, conducive to superficial and strategic changes. When the integrated information leads to changes in underlying assumptions, theories, and goals, the learning is qualified as double-loop, conducive to deep or fundamental change (Argyris & Schön, 1976, 1996). Single and double-loop learning are desirable for the effectiveness of initiatives/interventions. However, double-loop learning is often more desirable in complex situations such as the Grand-Popo fishery context because it is conducive to effective, deep, and sustainable changes (Argyris & Schön, 1976; Jiggins, Røling, & Van Slobbe, 2007). For double-loop learning to occur, several conditions are required, as discussed below.

### 2.3. Congruent and complementary action theories as condition for, or effect of, learning

The first learning conditions investigated in Grand-Popo are the congruity within the action theories of the stakeholders and the complementarity between the stakeholders' action theories. Action theories allude to mental schemes, models, or assumptions to which actors refer, to explain, to understand, to predict, and/or to control facts and events and to take action (Argyris, 1970; Argyris & Schön, 1976, p. 5, 1996). An action theory is congruent if the action theory *espoused* (assumptions articulated to others) does not conflict with action theories *in-use* (the assumptions underlying practices) (Argyris & Schön, 1976, pp. 23–24). Any action theory is supposed to consist of about four micro-theories or micro-assumptions (Argyris & Schön, 1976), providing information about what, why, how, when, and where or under which conditions, both in theory and in practice.

The detection of discrepancy between action theories espoused and in-use is an opportunity for learning and improvement in practice (Argyris, 1970; Argyris & Schön, 1976, 1996). Changes noticed in a person's action theories reveal whether learning happened and what kind of learning took place (Argyris & Schön, 1976, 1996; Leeuwis, 2004). We regard the development of congruent action theories (espoused and in use) as a condition for effective interventions (Argyris & Schön, 1976, 1996; Checkland, Forbes, & Martin, 1990; Crawford & Bryce, 2003).

In addition, similarities and differences in problem definitions, perceptions of problem causes, and potential solutions to problems between the two stakeholder categories were investigated. These aspects of people's action theories are vital in collaborative

learning interactions of interdependent actors (Leeuwis, 2004; Röling, 2002; Stacey, 2003). The facilitation of learning interactions among interdependent stakeholders is easier if action theories are shared, overlapping, or complementary because they allow for empathy or willingness to sympathize and collaborate or interact (Pratt et al., 2009; Stankey, Clark, & Bormann, 2005; Wals, 2010; Widdershoven, 2001). However, complementary action theories may also arise during a learning process.

#### 2.4. Importance of interaction for learning

As mentioned in Section 2.2, interactions among humans, between humans and other beings, and between humans and events or phenomena may be conducive to changes in humans' action theories or learning. However, as addressed by many authors, learning from interactions is an active process facilitated by empathy or willingness to sympathize and collaborate or interact, and to select and use the desired action theories or micro-theories (Leeuwis, 2004; Pratt et al., 2009; Stankey et al., 2005; Taylor, 2003; Wals, 2010; Widdershoven, 2001). According to Widdershoven (2001) and Pratt et al. (2009), concern or empathy for an interaction opens up the attention of interactants to the process and enhances the chances for learning by those interactants. Therefore, for learning interaction facilitation, facilitators are advised to build their intervention around shared or overlapping issues or concerns of the people involved (Widdershoven, 2001), even if ambiguous issues relating to the overlapping and complementary action theories are to be addressed later in the interaction process.

Any interaction is conducive to learning so long as the interactants feel involved in the interaction process. However, the level of learning depends on the quality of the interaction and the quality of feedback or information exchanged by the interactants (Leeuwis, 2004). Thus, single-loop learning occurs when interactants capture feedback that stimulates them to change action strategies while keeping the goals, values, and reasons underlying their actions/practices more or less constant. Single-loop learning feedback does not challenge the learner to feel the need to change the fundamental reasons behind his/her actual actions/practices. Double-loop learning occurs when interactants capture feedback that urges them to reflect on the goals and reasons underlying their actions and their action strategies. With such feedback, the learner experiences mental or relations tensions that cannot be dealt with by coping strategies (Argyris & Schön, 1976, 1996; Engeström, 1999; Loeber, van Mierlo, Grin, & Leeuwis, 2007, pp. 86–87; van Mierlo, Leeuwis, Smits, & Woolthuis, 2009). Given the mental tensions that accompany the double-loop learning desirable for the study context of Grand-Popo, such learning is not easy to reach, especially when power is at play in the interaction (Leeuwis, 2004).

#### 2.5. Influence of power on learning

According to some responsive evaluation scholars, for example, Abma (2005a, 2005b, 2006), Baur, Abma, and Widdershoven (2010), and Baur, Elteren, Nierse, and Abma (2010), ambiguity or incongruity can only be mitigated if there are few power differences among stakeholders or if they are reduced in the interaction context. In this article, we use the concept of power to refer to the resources that one actor or a group of actors or stakeholders can mobilize to control his/her/its actual level of resources and/or to access more resources. Power resources can relate to economic, social, cultural, psychological, political, and protective capabilities (Luttrell & Quiroz, 2009), which can all influence learning in one way or another. The control or accumulation of resources can be visible or formal, hidden or

invisible, or internalized depending on the resource use arenas (closed, invited, or claimed) and places (global, national, or local) (Gaventa, 2003).

Learning – being an active process facilitated by empathy and willingness to interact, capture, and use feedback – may be hindered when interactants have different power positions (Abma, 2005a, 2005b, 2006; Argyris, 1976, 1991, 2003; Baur, Abma, et al., 2010; Leeuwis, 2004). This is especially true when the changes pursued are not desired by the most powerful actors on whose willingness interactions depend. If powerful people do not feel concerned with fundamental change, they can avoid engaging in interactions that can create the mental and relational tensions that accompany double-loop learning or agree to participate in such interactions with strategies to avoid confrontational feedback exchanges (Abma, 2006; Baur, Elteren, et al., 2010; Gaventa, 2003; Leeuwis, 2004; Luttrell & Quiroz, 2009). Therefore, power differences need to be addressed when one is concerned with interactive learning facilitation. To this end, one needs to build mainly on overlapping issues which create space for empathy and for willingness to interact (Widdershoven, 2001).

#### 2.6. Research design

Given the importance of action theories, interaction, and power differences in the understanding and the facilitation of learning, we investigated first the action theories of the fishery stakeholders. Next, we investigated the extent to which there was congruence within, and complementarity between, the action theories of the fishery stakeholders. In addition, we studied the extent to which there were power differences and interactions for learning among the stakeholders.

For the unfolding of information about the stakeholders' action theories and their power and interactions, the study builds upon intervention plan and the review of evaluation documents, participant observations, and individual and group interviews with 160 fishing community members and 50 interventionists. The fishing actors, who came from 20 fishing villages targeted for fishery project interventions in Grand-Popo, were selected purposively and with snowball sampling depending on their experiences with fishing problems and interventions. The interventionists interviewed came from:

- the fisheries directorate,
- the Grand-Popo agriculture promotion centre,
- the Grand-Popo municipal council,
- key NGOs, and
- three large programmes.

All those organizations were concerned with fishery interventions in Grand-Popo.

We carried out semi-structured interviews in formal and informal settings. We engaged in participant observations of action theories in-use for triangulation of information sources. Most of the interviews were tape-recorded and transcribed or summarized by the main researcher who was familiar with the local language spoken by the fishing people. The contents of the information gathered were analysed to identify the general patterns of action theories per stakeholder category. Those patterns of action theories have been validated through member-check and cross-check (check of views/action theories of others) by groups of stakeholders in order to make sure that the views were properly interpreted by the researchers. The congruency and ambiguity existing between the stakeholders' action theories have been inferred from the comparison of the identified patterns of action theories.

To study the power differences between the stakeholders, we addressed the differences between the stakeholders in their ability

to access relevant intervention knowledge or backgrounds, because of the importance of knowledge in power shaping and use (Gaventa, 2003; Leeuwis, 2004; Ulrich & Reynolds, 2010). We did so by observing and interviewing the stakeholders about the extent to which intervention knowledge such as diagnostic studies, intervention plans, intervention means, evaluation studies, and experiences in the field, were known by them and the extent to which the owned knowledge was integrated in the plans and studies.

### 3. Learning conditions in Grand-Popo

The data collected served two functions. They formed the first steps in the responsive evaluation of fishery management in Grand-Popo itself, but were also essential to the development of the responsive evaluation approach that will be adapted to the Grand-Popo intervention context. This article reports on the data related to the conditions prevailing in the study context which justify the design of an adapted RE, and on the process of, and the design of the RE approach. A later article reports on the process and outcomes of this RE approach. As presented below, the study revealed a repetitive discrepancy between the interventionists' espoused and in-use action theories, a high ambiguity between the action theories of interventionists and fishing actors, large power differences, and an absence of learning interactions between the fishery stakeholders.

#### 3.1. Discrepancy in interventionists' action theories

As mentioned in Section 1, in an earlier study (Kouévi et al., 2011) it was revealed that the action theories espoused and in-use by the fishery interventionists had been discrepant since the 1950s, and this discrepancy even increased over time. This earlier study built on previous interventions' plans and evaluation results and on observations and interviews. It revealed for example that the interventionists often established fishing rules without being able to monitor compliance with them or make the fishing community members respect them, although they had planned to do so. The interventionists also often planned the promotion of alternative income-generating activities but never seriously did so. Thus, the design and implementation of activities planned by interventionists in relation to fishing rules and income-source diversification to solve the fishery problems were not put into practice.

#### 3.2. Ambiguity of intervention action theories among fishery stakeholders

This section presents the ambiguity in intervention action theories of the Grand-Popo fishery stakeholders. We first present the action theories of each of the stakeholder categories and then compare them.

##### 3.2.1. Action theories of Grand-Popo fishing actors

The problems defined by fishing actors interviewed relate to the impairment of their livelihood conditions. According to the interviewees, their livelihood impairment is mostly due to fish stock scarcity, the absence of income-generating opportunities, floods, and the absence of socio-economic development infrastructures. For most of them, fish stock scarcity is mainly due to the siltation and changes in the water quality caused by the hydroelectric dam *Nangbéto* constructed upstream in 1988 (Association *Nonvitcha*, 1987; Interviews and observations, 2007–2011; Ouali, 1995). The main changes they referred to related to the sweetening of the previously brackish water of the lagoon downstream due to flooding and to the siltation and blockage of the Grand-Popo Delta; greater prevalence of

hippopotamuses threatening fishing and the fish trade; and the proliferation of aquatic plants. The cause of these fishery problems has been expressed in terms of:

... *The water bed is totally silted and doesn't allow reproduction of fishery resources. The water bed is so silted that nowadays it's possible to stand at places previously very deep ...* (an interviewee from Avlo-Houta village, 2009, 2010).

The fishing communities of *Kouèta*, *Hokouè*, *Avlo-Houta*, and *Avlo* villages (greatly affected by the delta) pointed to the frequent opening of the obstructed delta and coastal erosion as causes of the destruction of their houses, their villages, and of fishing downstream.

The relocation of the wharf and port activities from Grand-Popo to Cotonou (economic capital of Benin) between 1959 and 1965 has been indicated by fishing communities as reducing their income-generating opportunities. According to them, the economic prosperity of Grand-Popo was previously mainly facilitated by the presence of the wharf and port activities. Indeed, because of the port facilities in Grand-Popo, most nationwide export-import transactions took place via this town with economic benefits for the local population in terms of trade opportunities (mainly because there were enough clients for a viable trade enterprise) (Cornevin, 1962; Pognon, 1955). This is no longer the case since the government relocated this economic infrastructure from Grand-Popo to Cotonou. The interviewees also consider the absence of development infrastructures such as roads fit-for-purpose, bridges, clean water, hospitals, electricity, schools, leisure and important business centres as an impediment to their livelihood opportunities. For them, the absence of such infrastructures prevents their having easy access to basic needs, and therefore to well-being. For instance, one interviewee from Avlo, supported by his fellows said:

... *Mainly roads, water, electricity, hospital, market, and schools open up eyes of [i.e. develop] villages ... No other village in the country is still in the development state we are in the Arrondissement of Avlo ...*

This view concurs with views expressed by interviewees from the Arrondissements of *Sazué*, *Djanlanmey*, and *Adjaha*, like:

... *It's light and roads which open eyes for localities ...*

On the basis of the above diagnosis of the problems they face, fishing communities want the causes of these problems to be removed by interventionists, policymakers, and other powerful community members (intellectuals and other decision makers), whom they perceive to be indifferent to their problems. They especially want the flood effects of the dam to be halted or controlled. They want income-source diversification according to the needs and specificities of each community. Some people suggested, for instance, the promotion of pig farming instead of the rabbit farming promoted by one of the intervention project. Communities living close to the sea and threatened by siltation, coastal erosion, difficulty crossing tidal waves, and the migration of fish stocks towards the sea after the opening of the delta, want the delta to be protected, using stones or rocks to stabilize the delta and its banks. All the fishing communities want the rivers and lagoons to be dredged for flood control and the restoration of fish reproduction shelters. They also want socio-economic development infrastructures to be constructed in their communities by interventionists and policymakers in order to allow their villages and their children to "open eyes." The following utterances from a fisherman from *Hokouè-Village* illustrate some of the solutions suggested by the fishing communities:

... *We who are riparians rely only on things related to the water. However, the water is continuously silted, so that we see the danger*

coming towards us. Therefore, we will not refrain from asking for the dredging of the water . . . We insist on the dredging of the water because it's very important for us. The delta is also eroding us and making whole villages disappear. And we are asking the government to come and enrock the delta to stabilize it to stop the erosion of our villages. However, to enrock the delta, the rocks should be transported through the water. Since there is no road on the water because of siltation, the dredging is therefore the most important solution for us . . .

These suggested solutions have often been expressed by the fishing communities to interventionists and policymakers. They have never led to effective interventions, especially with regard to dredging, income-source diversification, flood control, and delta revetment with stones to stabilize the banks. According to most interviewees, interventionists as well as policymakers have always cheated them by consulting them about their problems and proposing solutions and giving them hope that is never fulfilled. In their own terms, most of them said, equating the interviewer to an interventionist:

... That is what you always do . . . When the time comes [election or an intervention], you come and ask us to tell you our problems, and we cooperate. Once you achieve your goals [data collection or election], you don't come back. We are tired of always telling our problems to you without getting satisfied . . . Even most of us do not wish to cooperate again with you . . . (utterances portraying views of interviewees in all 20 interviewed villages).

This quotation shows how much the trust between interventionists and the fishing communities has deteriorated. However, because of their vulnerability and quest for solutions, the fishing communities continue cooperating, somehow, with interventionists, hoping that someone will listen to them one day and take relevant initiatives for their well-being.

### 3.2.2. Interventionists' current action theories

The problems espoused by the interventionists do not differ fundamentally from those previously espoused by them (Kouévi et al., 2011). The major fishery problems articulated still relate to fish stock depletion and to the impairment of fishing communities' livelihoods (all interviewees). They were stated by an interventionist from the agriculture promotion centre (CeCPA) as follows:

... The fishing people of Grand-Popo suffer from the loss of fish biodiversity, financial vulnerability, and absence of alternative employment opportunities . . .

The interviewees attributed the causes of these problems to the lack of respect of sustainable fisheries management and fishing rules by fishing actors. Furthermore, technicians and field agents blame the government for the limited resources given to the fishery development sector, thereby facilitating very limited effectiveness in practice. These reasons for the fishery problems were stated as follows by the head of a fishery programme:

... The problems should be attacked from their root-causes (fishing and sustainable fishing water management rules' respect, strategic dredging, real fishing police establishment, etc.). However, there should be effective political will and adequate working means (radar for monitoring of practices, police, etc.) . . .

Therefore, to solve the problems, interventionists would like the government to provide them with relevant intervention resources (money, control) and deterrent and sanctioning resources (radar, motorboats, police) in order to allow them to promote income-source diversification and to foster sustainable

fishery resources management and fishing communities' respect for fishing rules. With relevant resources (not precisely specified), they expect to raise fishing communities' awareness about the necessity to respect fishing rules, and to monitor and sanction offenders effectively. As far as the interventionists are concerned, the government, the municipal council, NGOs, and the projects cannot solve all the problems of the fishing communities. The fishing communities also have to act on their own initiative in relation to such issues as income-source diversification and respect for fishing rules instead of waiting for everything from interventionists and policymakers. The deputy head of the fisheries directorate, for instance, said:

... The government and projects cannot solve all their problems, because they have limited means . . . Fishermen also have to take their own initiative . . .

### 3.2.3. Ambiguity among the fishery stakeholders' intervention action theories

Comparison of the action theories espoused by the Grand-Popo fishery stakeholders shows some overlaps between problem definitions and some solutions. The fishery stakeholders share general problem definitions relating to the impairment of fishing communities' livelihoods and fish stock and habitat depletion. Income-source diversification is also viewed by intervention stakeholders as an alternative for livelihood improvement. However, the stakeholders present different perceptions about the causes of the fishery problems. Whereas fishing communities attribute the causes of the problems to the absence of socio-economic infrastructures, to the hydroelectric dam constructed upstream, and to the presumed indifference of interventionists, policymakers, and powerful community members, interventionists see the problems as being caused by the non-respect of sustainable fishery resource management rules by fishing communities themselves and the limited intervention resources available.

Thus, interventionists and fishing communities differ on what solutions to prioritize. Fishing communities want opportunities for the satisfaction of economic and basic needs to be opened up for them. They want problems caused downstream by the dam (siltation, floods, sweetening of brackish water) to be stopped. They also want the silted water to be dredged mechanically in order to allow easy fluvial transportation and the restoration of the fish stock reproduction system. Meanwhile, the main concerns of interventionists relate to income-source diversification for fishing groups and fishing communities' respect for sustainable fishery resource management. The stakeholders differ also in their views on who is responsible for the problems and who should solve them. Whereas fishing community members blamed interventionists for the fishery problems, the latter blamed the fishing communities and policymakers for the same problems.

In summary, we can conclude that there is ambiguity among the action theories of the fishery intervention stakeholders in Grand-Popo, mainly about the causes of the fishery problems and the potential solutions.

### 3.3. Double-loop learning interactions among stakeholders

The fishery intervention stakeholders in Grand-Popo have hardly interacted at all. Interventionists tend to interact with a few representatives of the fishing communities in towns, mostly at a distance from the places where the problems are being experienced. These restrictive or selective interactions mostly address diagnoses and proposals for solutions, and sometimes evaluations. As evidence of this selective interaction: most of the fishing interventionists interviewed acknowledged that they rarely go to

villages on the island of Avlo (located about 12 km from the centre of Grand-Popo where most meetings take place), although the people from these villages seem more exposed to fishery problems. The representatives are supposed to account to their peers, but they seldom do so, and the interventionists also seldom monitor the practices of those representatives (Interviews, 2007–2011). When intervention plans are being developed, it sometimes happens that some interventionists go and meet the people in some of the villages, mostly those villages that are easy to access (close to town for instance). Even then, they seldom go back to the communities to account for how they have incorporated the villagers' views into their plans or concrete activities (Interviews, 2007–2011). Therefore, most fishing community members have lost trust in interventionists and policymakers, and are reluctant to participate in problems and solutions definition meetings when given such an opportunity. Those who continue participating in such – relatively rare – community-level meetings with interventionists sometimes try to express their worries about interventionists taking effective action. These kinds of interactions and feedback exchanges between the fishing community members and the interventionists, i.e. boycotting meetings and expressing concerns when given the opportunity by interventionists, do not yet bring these latter to learn. The interactions are still insufficient to induce the interventionists to be more effective in practice. This may be caused by power differences in this interaction process.

#### 3.4. Power differences among the stakeholders

In Grand-Popo, interventionists have scientific and empirical backgrounds about intervention processes because of their professional training and contact with scientists, policymakers, financial partners, the field, and the fishing communities. Indeed, the professional training of interventionists and their interactions with various stakeholders and events expose them to varied social learning opportunities that they use in relationships with the fishing communities, who hardly have such learning opportunities. This easy knowledge and experience exchange position makes the interventionists rich in terms of intervention knowledge, and consequently in terms of intervention power. Therefore, interventionists know relatively more about the fishing field, the fishing communities, the policymakers, and the financial partners than the fishery communities, and can easily use such knowledge to their own advantage in interventions.

On the other hand, apart from some better-informed representatives, the intervention knowledge of the fishing communities is experiential and is relatively narrower than that of the interventionists. Generally, fishing communities know very little about the interventionists, whom they see as policymakers. This can be noticed in the perception of fishing communities who attributed the cause of the persistence of the fishery problems to interventionists and policymakers in general, without being able to name the main people responsible.

With such differences in intervention knowledge and hence power, we wonder to what extent the fishing communities can interact with interventionists towards double-loop learning. Given these imperfect conditions for learning prevailing in Grand-Popo, we explore to what extent and how responsive evaluation can be used for learning and improvement of the effectiveness of interventions.

#### 4. The relevance and limitations of responsive evaluation for Grand-Popo

Given the continuing ineffectiveness of the interventions and the apparently shared or overlapping interest in solving the fishery problems expressed by the fishery stakeholders, we perceived the

need to design and implement an action research approach in order to halt, and if possible reverse, fishery resource depletion and the impairment of fishing communities' livelihoods by stimulating double-loop learning interaction among stakeholders. We build on the basics of the responsive evaluation (RE) approach, because this action research approach deals with ambiguity and power differences among stakeholders, as was evident in Grand-Popo. Furthermore, it seeks to improve the effectiveness of interventions in practice via a collective process and thus may provide a way out of the deadlock in Grand-Popo.

RE is a participatory method of process evaluation that generates feedback on the value and meaning of intervention programmes for the stakeholders concerned (Abma, 2005a, 2005b; Abma & Stake, 2001; Stake, 2006). This section discusses first its basics and then its limitations in the light of the characteristics of the Grand-Popo fishery management context in order to suggest adaptations for this specific case.

##### 4.1. The basics of responsive evaluation

RE was developed around the 1970s by Stake and some of his education evaluation colleagues (Stake, 1975) in order to respond to the need for evaluation to serve all stakeholders' utility goals instead of just testing the attainment of interventionists' preconceived intervention goals. Testing goals is perceived by responsive evaluators as weakly conducive to improvement of interventions in the context of high ambiguity, where goals and values of intervention programmes are not shared by the stakeholders who are supposed to contribute to the success of, and to benefit from, the programmes (Abma, 2005a, 2005b; Abma & Stake, 2001; Stake, 1975, 2006). Contexts of high ambiguity are characterized by contradictory interpretations about what needs to, what can, and what should, be done, when, and where (Abma, 2005a, p. 391). This ambiguity can occur in contexts of complexity, uncertainty, and diverging values of stakeholders (Abma, 2005a; Abma & Noordegraaf, 2003). Such contexts are those of non-routine and collaborative interventions and absence of consensus (Abma, 2005a, p. 391). In contrast, in routine contexts, stakeholders can easily learn to reduce the degree of ambiguity. A way to make evaluations useful and emancipatory for all stakeholders in highly ambiguous contexts is to explore and integrate issues of all concerned stakeholders into evaluation criteria, in such a way as to allow programmes to be readjusted and to extend their utility to marginalized stakeholders (Abma, 2005a).

In order to reach this utility-oriented evaluation goal, responsive evaluators suggest the promotion of naturalistic or holistic communication among programme stakeholders (Abma & Stake, 2001; Stake, 1975). This communication approach aims to explore all kinds of information of importance for stakeholders by allowing them to express their personal, exhaustive impressions about issues at stake, and to facilitate their exchange and discussion. In this way, each dialogue participant can learn about their partners' issues, marginalized issues can be included, and practice can often be improved. The suggested strategy is to organize friendly discussions around controversial issues among stakeholders (Stake, 1975). Since stakeholders hold different power positions from which they do not like to derogate, the negotiation of safe participation for stakeholders in discussions is a requirement of responsive evaluation (Abma, 2005a, 2005b; Guba & Lincoln, 1989; Stake, 1975). The naturalistic (natural/open) nature of discussions needs to be adapted to contexts. That is why Stake (1975) and Abma and Stake (2001) qualify responsive evaluation as context-bounded or situation-bounded. Methods and strategies to promote naturalistic communication and to adapt to contexts range from portrayals, narratives, maps, graphs, exhibits, taped conversations, photographs, video-projection, audience role play, etc., depending

on the learning preferences of the audiences (Stake, 1975; Stufflebeam, 2001, pp. 63–71). All these media are supposed to build around ambiguity to trigger learning.

Potential outcomes expected from responsive evaluation processes are social inclusion of marginalized stakeholders, naturalistic communication, mutual understanding, popular learning, adaptation of programmes to stakeholders' issues, and shared actions (Abma, 2005a, 2005b; Abma & Stake, 2001; Stake, 1975). Popular learning is seen as the learning occurring in a natural communication setting in which every stakeholder can access all kinds of information important for them and from which they can learn. This kind of learning assumes that exposing people to intervention information can allow them to learn and benefit from interventions. Consensus building could be an issue, but it is not a necessary output requirement of this approach. The most important aspect is that it promotes popular learning that could lead to the empowerment of victims or less-voiced stakeholders if they are all informed about the interventions and their consequences.

#### 4.2. The evaluation process and the responsive evaluator's tasks

A process of responsive evaluation encompasses about five tasks and related roles for the evaluator. It consists of research/exploration of issues/controversies, interpretation or endowment of meaning to findings, creation of conditions for dialogue facilitation between stakeholders, education, and Socratic guidance (Abma, 2005a, 2005b). The research or exploration of issues happens through conversation with varied stakeholders, especially victims and silenced voices, and leads to the elaboration of an illustrated report without conclusion or recommendation. Conclusions and recommendations are to be avoided in order not to block dialogue and to stimulate reflection. Conversations can be taped and if possible video recorded, and transcripts are used to build the narrative report illustrated with verbatim quotations, storytelling, narration of vicarious experiences, portrayals, pictures ... (Stake, 1975; Stufflebeam, 2001). Issues discovered lead to the selection of evaluation criteria to be discussed within, and if possible among, groups of stakeholders later. As a hermeneutic being, the researcher reflects on findings and gives meaning to issues (role of interpreter); but the evaluator's interpretations should be submitted to member-check and to triangulation of sources and methods for validation before being transcribed in the final report for discussion during the following dialogical process.

Once important issues (i.e. aspirations or values) are explored, interpreted, and member-checked, the evaluator may create conditions for stakeholder dialogue by convincing them about the need for collaboration and participation towards shared vision and action, and by arranging open dialogue and mutual respect. The success of the evaluator in the creation of such dialogical conditions depends on how trustworthy s/he is to the stakeholders and on the historical collaboration context (Abma, 2005a). If past experiences have lessened the trust among stakeholders, then the evaluator can start with almost homogenous groups of stakeholders (Abma, 2005a, 2006; Baur, Elteren, et al., 2010). In the context of sensitive issues and strategic responses from stakeholders, triangulation methods and dialogue conditions can help to facilitate open discussions (Abma, 2006).

The role played by the evaluator consists of sharing findings or issues with the stakeholders and bringing participants to reflect on one another's concerns. During the dialogical session, the evaluator makes participants respect the agreed participation rules and encourages people to be as explicit as possible during their discourses. As already mentioned, the dialogue can be tape and/or video recorded, and transcribed for the following report writing. Also, the facilitator may observe all on-going interactions and keep a reflexive logbook or journal.

During the dialogical sessions, the evaluator is also supposed to play a role of provocateur of understanding, or image provider, or educator (Abma & Stake, 2001). Such a role consists of assisting participants in the explanation of various experiences by using didactic or knowledge delivery, i.e. information provision, or discovery learning/self-direction approaches, i.e. learning by doing or information provision upon the demand of stakeholders in given conditions (Abma & Stake, 2001; Stake, 1975). At the end of the dialogical process, the evaluator may probe into taken-for-granted ideas based on discussions, shared truths, and certainties, and bring in new meanings and interpretations. Such an evaluator role is called Socratic guide.

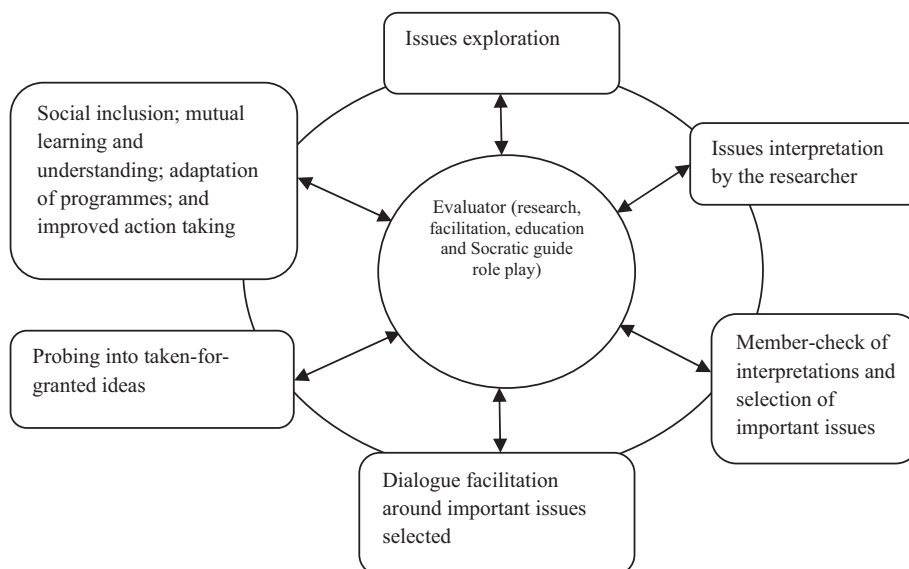
All in all, this RE process can lead to social inclusion of marginalized stakeholders, mutual learning and understanding by all stakeholders, adaptation of intervention programmes to issues of less powerful stakeholders, and shared and improved actions. All outcomes are tracked through the monitoring and the documentation of the responsive evaluation processes (Stake, 1975). The written report is supposed to give as much detail as possible about the process and the context to readers so that they can decide about the usability or generalizability of the findings in their context (Abma, 2005a, 2005b; Abma & Stake, 2001; Stufflebeam, 2001). Fig. 2 visualizes the original RE process.

#### 4.3. Some critiques of responsive evaluation

To date, responsive evaluation has been used mostly to evaluate intervention programmes in healthcare and school settings (Abma, 2003, 2005a, 2005b; Abma & Stake, 2001; Baur, Abma, et al., 2010; Baur, Elteren, et al., 2010; Stake, 1975). These settings have often been considered and treated by responsive evaluators as bounded (Stufflebeam, 2001). This means that responsive evaluators hardly pay attention to cases or other settings interacting with, and influencing processes in, their case studies. According to authors critical of RE, this may misinform the evaluation processes and outcomes in the sense that principal causes of evaluated problems cannot be tackled (Stronach, 2001; Stufflebeam, 2001; Widdershoven, 2001). These and other authors assume that no case is bounded and suggest going beyond case studies if necessary (Engwall, 2003; Morell, 2005). This critical stance is especially relevant in natural resource management contexts where management realities are so multiple and interconnected that considering case studies as bounded may mislead the problem-solving facilitation process. This is why authors on natural resource management suggest taking a multi-level or systemic analysis perspective to deal with complexity and uncertainty (Blackmore, 2010; Giller et al., 2008; Ison, Blackmore, Collins, & Furniss, 2007; Smith, 2010; Ulrich & Reynolds, 2010; Williams & Imam, 2006).

Another critique of the responsive evaluation approach relates to power issues. Authors of this critique claim that by aiming at reducing power gaps between stakeholders, RE processes are exposed to bias because power issues are political and thus incompatible with scientific norms of neutrality and objectivity (Stronach, 2001; Stufflebeam, 2001). This critique may be relevant from some perspectives. However, every human activity is indeed political in the sense that each human, including scientists and evaluators, is an intentional sense maker and actor, who can hardly avoid influencing, consciously and unconsciously, processes in which s/he engages (Baur, Abma, et al., 2010; Blackmore, 2005; Leeuwis, 2004; Mertens, 1999, 2009). Mertens (1999), in her transformative evaluation theory, perceives that openly stating their own concerns in the evaluation processes is a way for evaluators to acknowledge and deal with biases in such a context. We agree with this stance.

On the basis of the description of the basics and critiques of the responsive evaluation approach, we now turn to the discussion of



**Fig. 2.** Framework of a general responsive evaluation [RE] process.  
Source: Based on Abma (2005a, 2005b).

the extent to which RE suits the learning conditions in the Grand-Popo fishery context, and the adaptations it needs.

#### 4.4. Limitations of RE for the Grand-Popo context

With respect to the existence of power differences and ambiguity among the action theories of the fishery stakeholders, we see RE as well suited to the Grand-Popo case study. However, in line with the critiques in Section 4.3 and in our view, the contexts in which RE has been applied thus far differ fundamentally from the Grand-Popo context in three dimensions: type of intervention, level of interaction between interventionists and beneficiaries, and level of complexity. In the following sections we discuss these contextual differences and suggest adaptations to the RE approach.

##### 4.4.1. Type of intervention: need for historical analysis of interventions and experiences to deal with routine

The responsive evaluation approach is commonly applied for unique and non-routine intervention programmes because learning for ambiguity reduction and improvement in practice is supposed to occur easily from experiences (Abma & Stake, 2001; Stake, 1975). Such learning and ambiguity reduction as a consequence of information from interventions does not take place in Grand-Popo; we know this because there have already been generations of ineffective interventions (Kouévi et al., 2011). The intervention context therefore is routine.

Monitoring and evaluation studies have generated information about these intervention programmes but have hardly been discussed among intervention stakeholders (Kouévi et al., 2011). The improvement provoked by this monitoring and evaluation information happened mainly at the level of action theories espoused by interventionists, i.e. in new diagnostic documents and plans. The fishing communities do not seem to have learned from their intervention experiences about how to improve intervention outcomes. Improvements in practice are therefore limited (Kouévi et al., 2011). In this routine intervention context, learning and ambiguity reduction may require some extra conditions, such as access to, processing of, and selection of relevant information. These conditions seem to be lacking in the fishery intervention context in Grand-Popo.

The information to which the interventionists have had access is not the same as that accessed by the fishing communities because of the absence of information sharing interactions, so that ambiguity has persisted. In such a context, there is, therefore, a need not only to gather information about previous intervention experiences, but also to introduce such historical information into stakeholders' discussions in such a way as to facilitate learning, ambiguity reduction, and improvement in practice. This historical inquiry and discussion with stakeholders may then contribute to what responsive evaluators call holistic communication facilitation. Thus, we propose to add historical inquiry and discussion among stakeholders on earlier experiences with interventions in order to stimulate holistic communication around ambiguity in the routine intervention context in Grand-Popo. Such a discussion of experiences with failing interventions (like income diversification projects) among the stakeholders has not taken place thus far. Such a concern for the history of interventions has also been addressed by several authors (Crawford & Bryce, 2003; Engwall, 2003; Ison, Bawden, et al., 2007; Morell, 2005; Samuels & Ryan, 2011; Ulrich & Reynolds, 2010).

##### 4.4.2. Learning interactions: need to explicate theories in-use

In responsive evaluation theory, learning is perceived by RE authors as an implicit outcome of friendly holistic communication and discussion around ambiguous issues among stakeholders (Abma, 2005a, 2005b, 2006; Abma & Stake, 2001; Stake, 1975). Of course, after discussion of the issues, some learning could occur at the level of each stakeholder participant. However, experiences in Grand-Popo have shown repetitive discrepancy between espoused and in-use action theories, so that it may not be useful to build only on action theories espoused by interventionists after discussion.

Conditions must be created to facilitate more consistency within, and more congruence between, interventionists' espoused and in-use action theories (Argyris, 1976; Argyris & Schön, 1976, 1996; Kouévi et al., 2011; Blackmore, 2010; Leeuwis, 2004). The current RE framework does not explicitly address this issue of inconsistency in action theories. That is why we aim at the facilitation of more interaction between interventionists and fishery communities in order to stimulate double-loop learning. The suggested strategies to facilitate this kind of learning consist in

uncovering participants' action theories espoused and mapping their action theories in-use, and in inducing all stakeholders to perceive and reflect on incongruities and inconsistencies between core reasons for action in both theories. The mental tensions or cognitive dissonances resulting from this critical or reflective process are said to be conducive to double-loop learning (Argyris, 1970; Argyris & Schön, 1976; Bawden, 2010; Engeström, 1999; Ison, Blackmore, et al., 2007; Leeuwis, 2004; Mertens, 1999, 2009; Ulrich & Reynolds, 2010).

In the Grand-Popo fishery context, in order to facilitate double-loop learning, the responsive evaluation process should uncover not only ambiguity, but also incongruities in stakeholders' action theories espoused and in-use and introduce into the discussion core reasons for stakeholders' actions. Understanding the interconnectedness of the interdependent fishery stakeholders may play an important role in these learning facilitation processes (Baland & Platteau, 1996; McLain & Lee, 1996; Stacey, 2003; Stankey et al., 2005; Ulrich & Reynolds, 2010; Walters, 1997).

#### 4.4.3. Level of complexity: need for systemic analysis to deal with complexity and uncertainty

The Grand-Popo fishery intervention context is relatively complex. It is characterized by multiple interconnected loci of control of intervention processes and outcomes, multiple fishery management stakeholders, differences in power positions, and highly diverging and competing interests. Indeed, the fishery problems have interconnected natural causes (silts, mineral and water gradients in the water system, etc.) and anthropogenic causes (deforestation, dam construction, non-relevant management policy design and implementation, etc.) (Interviews, 2007–2011; Pliya, 1980). The fishery stakeholders are composed of fishing communities, intervention managers, designers, monitors and evaluators, policymakers, and technical and financial partners. Each group of stakeholders has its intervention competences (knowledge, skills, attitudes, and aptitudes), roles, stakes, and dynamics (Baland & Platteau, 1996; Crawford & Bryce, 2003; Holling, 1978; Ison, Bawden, et al., 2007). Even each stakeholder has its own characteristics. The fishery resources also have their own characteristics and dynamics to be known and dealt with by all stakeholders (Baland & Platteau, 1996; Botsford, Castilla, & Peterson, 1997; Jentoft & McCay, 1995).

Furthermore, the fishery resources are common goods, i.e. resources of interest for several stakeholders and characterized by subtractability, excludability, and rivalry (Baland & Platteau, 1996; Oström, 2005). Subtractability means that the resources diminish after use by some people. Excludability means that people who access the resource first prevent others from having access to it. Rivalry refers to competition among stakeholders to limit exclusion from access to the resource at stake. This common-good nature of the fishery resources makes them the object of competition among fishing communities (Baland & Platteau, 1996; Hardin, 1968; Oström, 2005). Even the fishery management programmes are the object of competition among interventionists because of their common-good nature and of their contributions to interventionists' livelihoods.

This number of interconnected fishery management factors is complex to deal with for fishery intervention professionals as well as for fishing communities, even in developed countries (Botsford et al., 1997; Jentoft & McCay, 1995; Stankey et al., 2005). As the degree of complexity of a problem is known to influence the level of uncertainty and initiative taking to solve the problem (Pratt et al., 2009; Stankey et al., 2005), the more a problem is perceived as complex by an actor, the more uncertainty s/he feels about solving the problem, and the less s/he will spontaneously take the initiative to solve it (Halbert, 1993; Pratt et al., 2009; Stankey et al., 2005). These complexity and uncertainty perceptions seem to

apply to the fishery intervention stakeholders in Grand-Popo, who expressed the desire to raise their level of understanding of the fishery management situation in order to reduce the degree of uncertainty and improve fishery problem solving (Dagnon-Prince et al., 2004; Interviews, 2007–2011; MEHU, 2001; Tomety et al., 2001).

In order to deal with these perceptions, complexity awareness raising, uncertainty reduction, and facilitation of effective action may help. All such actions may benefit from the systemic analysis of the reasons for the repetitive lack of effectiveness (Argyris, 1970; Bawden, 2010; Blackmore, 2010; Holling, 1978; Ison, Bawden, et al., 2007; Ison, Blackmore, et al., 2007; Smith, 2010; Stankey et al., 2005; Ulrich & Reynolds, 2010; van Mierlo & Arkesteijn, 2009; van Mierlo et al., 2009). Systemic analysis reduces complexity through representations or models simplifying complex realities for stimulation of system thinking, and easier understanding and handling of complex realities by people (Smith, 2010; Williams & Imam, 2006). With the objective of acknowledging and dealing with complex situations, systemic analysis aims at facilitating the engagement of interdependent stakeholders in joint learning about complex problems or issues for joint design, implementation, monitoring, and/or evaluation of solutions to the problems or issues (Bawden, 2010; Ison, Bawden, et al., 2007; Ison, Blackmore, et al., 2007; van Mierlo & Arkesteijn, 2009; van Mierlo et al., 2009).

From this systemic analysis perspective, we can say that the RE approach is already maximizing its effect by suggesting the engagement of interdependent stakeholders with different power positions in discussion around controversial issues. However, since the initial RE knowledge body did not explicitly address this perspective that commits to more structured ways of approaching complexity, we suggest adding systemic analysis to RE to deal with the complexity of fishery management facilitation in Grand-Popo. This would mean coming to a common understanding of the fishery problem-solving structures interacting functionally in and with the Grand-Popo fishery context (Holling, 1978; Smith, 2010; Ulrich & Reynolds, 2010; van Mierlo et al., 2009; Williams & Imam, 2006). Such an understanding may facilitate learning by the fishery stakeholders, especially the fishing communities (Pratt et al., 2009).

The extension of information gathering from issues to action theories is also part of the systemic analysis (Argyris, 1970). The systematic integration of this perspective in RE processes will, among other things, commit the evaluators to invest more time in literature reviews, interviews, and observations about the expected evaluation processes and outcomes. Knowing about these evaluation processes and outcomes may help participants, for instance, to invest more time in identifying and discussing inconsistencies and incongruities in intrapersonal, intra-group, and intra-community action theories, thus leading to effective improvement in practice. Hence, we suggest adding a systemic analysis perspective to the existing RE framework (see Table 1 and Fig. 3). Table 1 gives an overview of the adaptations suggested for the RE framework in the study context.

#### 4.5. The design of an adapted RE framework to fit the Grand-Popo fishery context

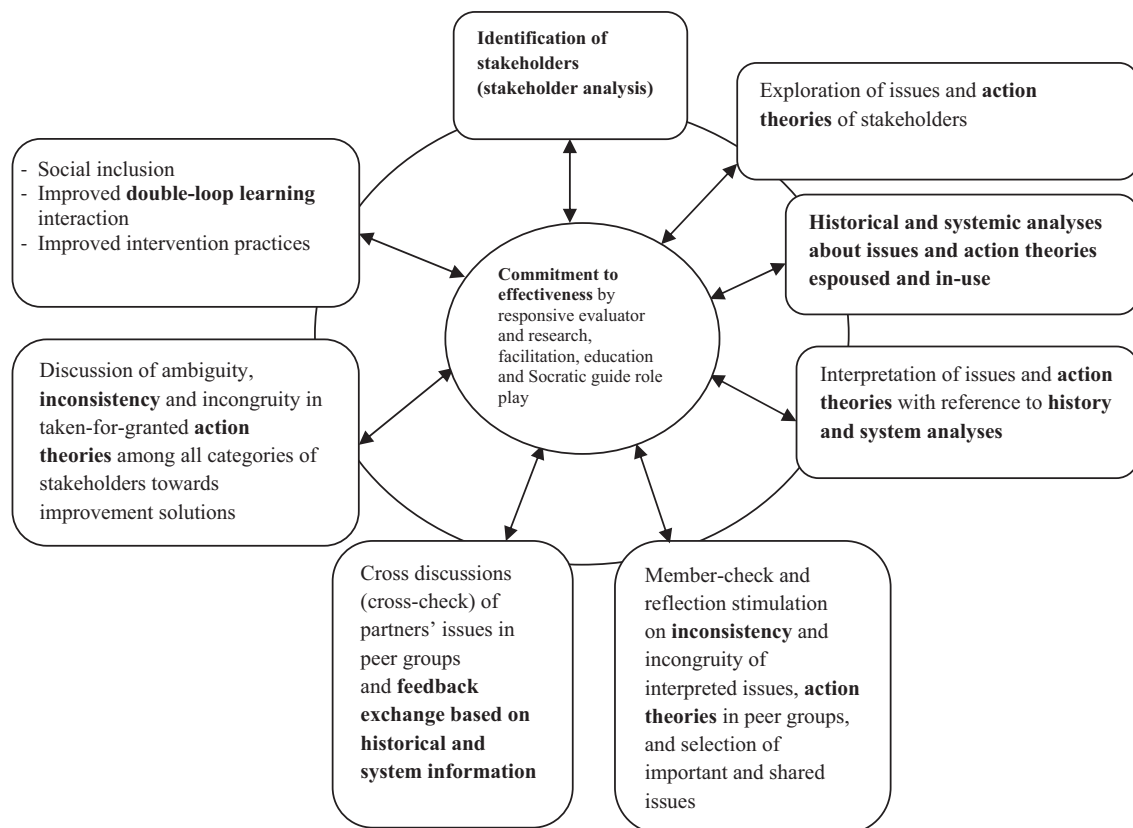
Fig. 3 presents the RE framework adapted to the Grand-Popo fishery context. It builds on the basics of RE and on the suggestions about adapting RE to the study context. In the centre of the figure, the idea of commitment to effectiveness is added to the role definition of the evaluator, as suggested by double-loop learning authors Argyris (1970), Argyris and Schön (1976, 1996), Fulmer and Keys (1998), and Putman (1993). This implies that, in the evaluation process, the evaluator does his/her best to find out

**Table 1**  
Comparative presentation of the regular RE context and the Grand-Popo fishery context and the suggestions for RE adaptation.

Current contexts of applied RE	Grand-Popo context	Suggestions for RE adaptation
Single, non-routine interventions	Repetitive interventions	Analysis of history of intervention processes to generate enough information about intervention action theories
Espoused action theories (conclusions of RE process) and improvement in practice (theories in-use) seen as systematically linked	Action theories espoused are repetitively different from those in-use	Uncovering and discussing incongruities and inconsistencies in theories in-use and espoused theories towards double-loop learning and improvement in practice
High ambiguity in the context of education and healthcare	Highly complex and ambiguous context of common goods	Systemic analysis to raise understanding of complexity, reduce uncertainties, and facilitate learning

the central causes of the intervention problems, and to identify and deploy relevant strategies to facilitate learning towards the mitigation of the identified problem causes, in collaboration with the evaluation partners (stakeholders). The idea of commitment is included because it is considered that, like interventionists, without self-commitment to effectiveness, evaluators will hardly be able to facilitate double-loop learning, or to join in this learning process (Argyris, 1976). In Grand-Popo, this may consist in learning about the effectiveness of fishery intervention and about its facilitation strategies; identifying the relevant categories of stakeholders; gathering information from all categories of stakeholders; triangulating information for more validity, transparency, and equity; and putting the gathered information into collective discussions where all stakeholders are represented and given free and respectful reflection and talk opportunities.

Because of the shortcomings identified in the current RE framework for the Grand-Popo fishery context, some other dimensions have been added to the existing RE framework in such a way that some of the RE activities are reframed and others added. The reframing concerns activities linked to exploration, interpretation, member-check, dialogues, and process outcomes, which initially were aimed at addressing issues important to stakeholders, but now are aimed at addressing the full action theories of stakeholders. Furthermore, the notion of action theory is added to all the activities relating to exploration, interpretation, and discussion, because of its value for understanding practices (Argyris & Schön, 1976). The new activities added to the RE framework relate to historical and systemic analyses (see stakeholder analysis and historical and systemic analysis activities in Fig. 3). The new activities and concepts are in bold to clarify the differences from the regular RE framework (see Fig. 3). Finally, the



**Fig. 3.** The RE framework for the Grand-Popo case study.  
Source: Adapted from Abma (2005a, 2005b).

expected outcomes of the RE approach have also been reframed, as explained in more detail in Section 5.

## 5. Criteria to assess the performance of the adapted RE

The results of carrying out the adapted responsive evaluation approach in Grand-Popo could be evaluated in the following dimensions: the social inclusion of marginalized stakeholders; improvement in stakeholders' interaction that may stimulate double-loop learning; and improvement in intervention practices. In this section, we explain each of them and include relevant related indicators that can be used to assess the performance of this RE approach.

### 5.1. Social inclusion of marginalized stakeholders

The concept of social inclusion of people perceived as excluded or marginalized may refer to several aspects ranging from their access to resources (such as education, housing, income, and food) to their involvement or integration in social processes (such as policy design and implementation) (Frazer, Marlier, & Nicaise, 2010; Koster, Nakken, Pijl, & van Houten, 2009; Labonte, 2004; Veland, Midthassel, & Idsoe, 2009). From an RE perspective, marginalized stakeholders are less-voiced, excluded, and less powerful compared to powerful stakeholders in intervention programmes (Abma, 2005a, 2005b; Baur, Abma, et al., 2010). Thus, we consider social inclusion of marginalized stakeholders to happen through the participation of the socially excluded people in dialogues with more powerful actors, and the integration of issues of the marginalized into intervention programmes (Abma, 2005a, 2005b; Abma & Stake, 2001; Baur, Abma, et al., 2010). This requires a good facilitation and process design (Leeuwis, 2004; Leeuwis & Pyburn, 2002).

The assessment of the criterion of social inclusion of marginalized stakeholders in RE may consist in documenting how much these latter participate in discussions with powerful stakeholders (interventionists and others); the extent to which they have been given the opportunity to talk freely; and how seriously their issues are taken and integrated into further intervention programmes. The number of joint discussions among stakeholders from different power levels (group discussions); the number of previously ignored issues discussed with and among stakeholders; and the new taken-for-granted issues of the marginalized can help in appreciating this criterion. The participation of fishing community members in interviews, peer/homogenous group discussions for member-check and cross-check of issues and action theories, and heterogeneous group discussions may help in the assessment of the level of inclusion of the marginalized fishing people. Social inclusion of marginalized stakeholders may have implications for learning by all the stakeholders.

### 5.2. Learning by stakeholders

We consider learning as both a process and an outcome. In terms of process, learning is endless, occurring during all reflective interactions with self, peers, partners, phenomena, and events (Kouévi et al., 2011). These reflective interactions lead to feedback exchange and capture (Leeuwis, 2004). In terms of outcome, this process can lead to awareness raising, interest mobilization, active experiential or social learning, and/or adapted practices and adoption of routines (Leeuwis, 2004, p. 161; Ringsing & Leeuwis, 2008).

We consider the assessment of learning as the appreciation of changes that occur in action theories of interacting stakeholders. Any change that occurs is already a kind of learning. However, we

expect three kind of learning to occur: single-loop learning, double-loop learning, and social learning, though double-loop learning is the most desired for the study context as explained above. We expect single-loop learning (learning mainly at the level of strategy) to occur – although we are seeking double-loop learning – because of the possible learning limitations of the stakeholders (in terms of commitment, understanding capacity, etc.) and the possible imperfections of the facilitation process (in terms of addressing issues and strategies capable of catching the attention and commitment of participants) (Pratt et al., 2009; Stake, 1975, 2006; Widdershoven, 2001). We expect also social learning to occur because of the discursive interaction between the stakeholders around overlapping issues (Maarleveld & Dangbégnon, 2002; Röling, 2002; van Mierlo et al., 2009). To assess these kinds of learning, we suggest a before–after approach (Green, 1979; Smith, Orvos, & Cairns, 1993). This approach consists of monitoring and taking notes of stakeholders' action theories before and after the learning interventions (or discursive interactions facilitated) of the RE process on the same issues. The learning that has occurred may be deduced from changes observed from the comparison of the stakeholders' action theories noted before and after the RE learning facilitation interventions. The learning facilitation activities of the RE process may relate to the discussions of ambiguity among, and incongruities in action theories of, the stakeholders in homogenous groups during member-check and cross-check of issues and action theories, and in heterogeneous groups (see Fig. 3).

### 5.3. Changes in intervention practices

If learning takes place, changes in practices could follow if the fishing actors and interventionists convert new ideas into action and practices. These changes can take a longer or a shorter time before they can be evaluated depending on the conditions necessary for the relevant changes. A change in fishery biodiversity conservation practices may for instance take a long time because of the biological, ecological, institutional, and financial conditions necessary for its realization. If most of the required conditions exist already, the time horizon for performance assessment can be relatively short.

The changes that we seek in a relatively short term relate mainly to the integration of fishing communities' issues into intervention programmes and practices, and to the development of consistent, congruent, and sustainable fishery management practices by all stakeholders. The meaning of sustainability will be determined by the overlapping perceptions of the stakeholders. A before–after approach (Green, 1979; Smith et al., 1993) may help assess this criterion. This means that the tangible changes that have occurred and have been observed after the implementation of the RE approach may serve as indicators for the assessment of this criterion. The tangible changes we expect relate to the improvement in the match between the espoused and the in-use action theories of the stakeholders (Argyris & Schön, 1976, 1996; Crawford & Bryce, 2003).

## 6. Conclusion and suggestions

Fishery management in Grand-Popo suffers from generations of ineffective interventions. This repetitive lack of effectiveness is mainly due to the absence of double-loop learning interactions among intervention stakeholders. Given the high degree of ambiguity and power differences, responsive evaluation has been identified as a promising action research approach to facilitate a reduction in the prevailing ambiguity and thereby trigger double-loop learning and improvement in practice. However, as noted, the general RE approach has some shortcomings in the Grand-Popo

context, which is characterized by repetitive interventions, repetitive discrepancy between espoused and in-use action theories, and a high degree of complexity and uncertainty. Therefore, the RE approach has been revisited for adaptation to the study context. Action theory, historical and systemic analyses, and discussion of the results, as well as the goal of double-loop learning, have been added to the original RE framework. A RE framework adapted to the Grand-Popo context has thus been designed, and some criteria and indicators for assessing performance have been proposed. The findings and analysis in this paper suggest that evaluators may diagnose evaluation contexts in such a way as to design approaches that allow for responsiveness to the specificities of individual evaluation cases. The results of the implementation of this adapted RE will provide us with more evidence about the relevance of this suggested design.

The adoption of this contextualized responsive evaluation approach will have implications for evaluators, evaluated people, as well as for evaluation commissioners. For instance, concerned evaluators have to spend time and budget for the additional work required by the adapted RE approach to their actual evaluation practices. For the contents of their work it means they need to develop the skills to uncover and analyse action theories, to conduct history and system analyses, to deal with power differences and to facilitate and monitor double-loop learning. Evaluated stakeholders have to open up for interaction with the assistance of the evaluators. Evaluation commissioners need to provide the evaluators and the evaluated people with the conditions, such as an enabling institutional environment and technical and financial means for a fruitful dialogue.

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