

## **Innovations in the Dutch Polder**

*Communities of Practice and the challenge of co-evolution*

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#### **Abstract**

Recently, a new initiative has entered the Dutch policy-arena of spatial planning, water management and nature preservation: the so-called Community of Practice (COP). Within such a COP actors with very different backgrounds (experts, inhabitants, officials, stakeholders) participate and try to find creative solutions for persistent political and societal problems by combining conflicting spatial functions in specific areas.

From a complex adaptive systems point of view, we analyse the logic and functioning of such a COP. From the literature on complexity and innovation we can learn that staying at the edge of chaos for COPs mean that they not only have to maintain an internal process of co-evolution between the very different actors involved, but also have to maintain relations of co-evolution with their wider environment.

After an in-depth case study 'Gouwe Wiericke' we conclude that COPs can produce innovative policy results, but reaching 'bounded instability' through sustainable co-evolution requires careful balancing acts between extremes.

## 1. Introduction: emergence of COPs in the Dutch polder

Modern government depends more and more on effective coalitions with private and societal actors in order to develop and implement policy solutions. One of the reasons for the increased interdependence between government on the one hand and society and business on the other is the degree in which knowledge resources are dispersed among many actors (Kooiman, 1993).

Therefore, many policy processes are nowadays embedded in a process of dialogue and deliberation with stakeholders in order to mobilise the necessary knowledge and expertise for solving today's complex problems. One of the recently implemented tools for combining deliberation, negotiation and joint decision-making, are the so-called *Communities of Practice* (COP). Wenger (1998) describes a COP as a group of people who share a concern, problem or passion concerning a particular domain and wish to improve their knowledge and skills through an ongoing exchange. People in communities of this kind, who meet regularly but do not work for the same departments or organizations, often go somewhat further than just generally talking about success stories and scanning policy practices to see which are the most forward-looking. The purpose of a COP is to give people a place and opportunity to exchange experience and together develop shared and/or new ideas on that basis. In the Dutch spatial planning and environmental policy field COPs are used to find innovative, practical and acceptable solutions for long-persistent problems in a specific area.

The purpose of this article is to deepen the knowledge on the functioning of COPs. COPs accommodate diversity and try to realise innovative combinations between highly different knowledge resources, interests and ambitions. The COP approach implies a *process* innovation in public policy-making. Governmental actors have to work together with private actors, citizens and experts. But a COP also often leads to *product* or *policy* innovations, because of the fusion of different types of knowledge and the combination of the different values and ambitions into one policy solution. Therefore, it seems interesting to use complexity theory in analysing COPs. In this article a Community of Practice is analysed in terms of its process and the products they deliver. We will elaborate the assumption from complexity theory that innovations can be stimulated when organisations are operating at the edge of chaos, combining both order and chaos, and see the way this

COP is managed to stay ‘at the edge of chaos’, in a co-evolutionary relation with its environment and between its constituting parts.

The article starts with a short introduction to the theory of complex adaptive systems in section 2. Especially the notion of co-evolution will be elaborated. We present a conceptual framework to describe the COP Gouwe Wiericke. We describe the phenomenon of COP in section 3 and present the main findings of our case study. The data for this article is derived from different research methods: an intensive process analysis through observations and face-to-face interviews, an expert meeting with COP-managers, and document analysis. We continue our article by describing our insights we got from analysing COP from a co-evolutionary point of view in section 4. We finish our article with section 5, in which we draw some conclusions.

## **2. A complexity perspective: co-evolution in and between complex systems**

Complexity theory provides a ‘conceptual framework, a way of thinking, and a way of seeing the world’ (Mitleton-Kelly, 2003: 5). Complexity theory departs from the notion that complexity arises from ‘the inter-relationship, interaction, and interconnectivity of elements within a system and between a system and its environment’ (idem p.5). The notion of complexity is frequently linked to the notion of co-evolution (Oliver & Roos, 1999; Merry, 1999; Stacey, 1992; 1995). Co-evolution refers to ‘the way each element influences and is in turn influenced by all other related elements in an (eco)system’ (Mitleton-Kelly, 2003: 7).

When our environment is continuously changing, as a consequence of others and ours acts, we can only survive in such an environment by seeking a sufficient level of fitness. We have to adapt ourselves to the conditions of our environment, but we also need to keep a sufficient level of uniqueness in order to deliver added value to this environment (Oliver and Roos, 1999; Stacey, 1995; Flood, 1999). The identity forms the added value of an actor for his environment. The central dilemma here is between identity and participation. When actors succeed in handling this dilemma, fruitful co-evolution can arise.

Through co-evolution an entity (organisation, actor, enterprise) adapts to and influence its environment in order to survive. Through the adaptive moves of both the entity and its environment, the landscape or environment change. Within this changing (fitness) landscape, actors have to continually seek optimal positions in order to survive. Merry (1999) elaborates the metaphor of the fitness landscape for organisational strategy. He states that the increasing interdependencies between organisations give a drive towards co-evolution. Each strategic choice of an entity leads to position changes of the others. Therefore, an entity has to continually reorganise itself in order to survive. An adaptive and co-evolving organisation is a self-organising organisation. Its flexibility and sensitiveness to local changes makes it possible to adapt quickly.

Mitleton-Kelly (2003) makes an interesting distinction between endogenous (within an entity or subsystem) and exogenous co-evolution (between entities or subsystems). This internal and external co-evolution has to respond to Ashby's law of requisite variety (Ashby, 1964): the internal variety of the system reflects the external variety in order to cope with the complex dynamics of its environment. Endogenous co-evolution between the elements of a system is necessary for a system to be able for joint action based on shared ambitions and images.

Fruitful co-evolution only can occur when there is co-evolution between a dynamic system and a dynamic environment. When one of both remains static, this process is distorted (Boisot & Child, 1999). The notion of co-evolution is directly related to the phenomenon of 'bounded instability' or 'the edge of chaos' (Merry, 1999; Griffin et al., 1999; Stacey, 2003; McElroy, 2003). A co-evolving system tries to adapt to the environment when necessary, and tries to influence its environment when possible. Staying in touch with other self-organising systems means instability: through their mutual interconnectivity, systems change when others do. But trying to influence the environment means stability, maintaining your own identity. Therefore, co-evolution leads to a situation of bounded instability.

In a situation of bounded instability, the ideal conditions for creativity and innovation, spontaneous emergence and self-organization are all present (Haynes, 2003; Kiel, 1994). In situations of equilibrium, organizations are normally too static to be really adaptive to new, unanticipated situations. Such a system will become irrelevant for its environment. When totally unstable, systems

drift away, not capable to respond in a coherent way to new challenges and an easy prey for disintegrating forces. Such a system will become rudderless. Without an own vision, and always trying to adapt, such a system thrives upon the waves of the dynamics of the environment. As Merry (1999: 275) says: 'Poised at the edge of chaos, the organisation can find the mix of confirmation and novelty that allows it to be a learning system that is able continually to self-organize and thus renew itself. It is able to have enough stability to maintain its identity, while at the same time it has enough creativity, novelty, and change-ability to be sustainable in the rugged, networked landscapes it inhabits. It has found the balance between chaos and order, novelty and confirmation, change and continuity, autonomy and interdependence'.

In the following we use a complex adaptive system perspective to analyse a Dutch COP, Gouwe Wiericke, and the way in which it develops through processes of co-evolution, both internal between the members of the COP and external between the COP and its environment. In particular we study the way in which this co-evolution is organized and stimulated by avoiding both the inertia of closeness and inward looking and the chaos of openness and relentless adaptation to the environment.

### **3. Gouwe Wiericke: introducing the case**

#### *3.1 Background information*

In the Dutch municipalities Reeuwijk, Boskoop, and partly in Waddinxveen, the polder 'Gouwe Wiericke' is located. The polder copes with very complicated problems with regard to its water management. First of all, the polder is very deep (six metres below sea-level) and the soil is slowly dropping. Second, the water in the polder contains large amounts of chloride. Through salt seepage water the water quality is much lower than normally. Third, there are severe problems with the water quality in surrounding recreation and nature areas. The polder delivers bad water to its environment. So, to improve the water quality in the direct environment, the water quality in this polder has to improve. Fourth, the regional government and the Water Board that looks after this area for using it as water retention area in times of emergency, which causes problems for the inhabitants of the polder.

In the Netherlands, spatial planning is a highly contested issue. Land is scarce and the demands are many. Climatologic changes (more water drainage) and sea-level rise, makes Dutch water management an extremely challenging task. In case of the Gouwe Wiericke, many governmental actors are involved in the management of this polder. First of all, the different municipalities, which have their own ambitions with their jurisdiction. They want to safeguard the local interests (agriculture, liveability, etc.). There is also a Water Board (Rijnland), which is responsible for the water quantity and quality. Third, the province of Zuid-Holland is involved. This public organization is responsible for nature development, safety against water calamities and regional spatial development. Then there are the direct users of the area: farmers and growers. There are also citizens with recreational and infrastructural wishes and demands on liveability and safety.

The history of policy-making for this polder is long and not very successful. All the municipalities have their own policy ambitions. Reeuwijk and Boskoop (the municipalities that are direct responsible for the area) want to favour the local economy and housing conditions. The surrounding municipalities want to minimise the inconvenience they suffer from the water problems in Gouwe Wiericke. The Water Board tries to optimise its water management and opts for large interventions in order to realise sustainable solutions. The Province (Dutch regional government) is also convinced of the necessity of solving the water problems. They also want to realise a more sustainable landscape planning in combination with more 'space for water', in the time of calamities. In the Netherlands, the new water management philosophy is to 'live with water', combining water retention with, for example, housing or driving greenhouses.

After many separated initiatives, the province takes the initiative to set up an administrative arrangement to realise an integral vision for the area of Gouwe Wiericke. The six local governments, the Water Board and the province form together a Steering Group. A project team from the province and the Water Board becomes responsible for the day-to-day course of business. On the basis of two technical reports (commissioned by the province) the involved governments decided to set up an Environmental Impact Assessment (EIA). In this EIA the proposed alternative is defined as realising water retention capacity of 14 million cubic metres water in the deepest parts of the polder in order to minimise seepage pressure and guarantee good water for the surrounding districts. Together, that

means the end of agricultural business in large parts of the polder. Simultaneously the province likes to realise more nature reserves.

In March 2003 the start of the EIA process and the proposed alternative are announced to the inhabitants of the area. On that meeting, fierce resistance becomes public. The farmers are very angry to discover the announcement of the end of their business. There is no support for any of the proposals. The authorities recognise the importance of this resistance. They decide to agree on the proposal from Habiforum (an independent knowledge network promoting innovative projects on multiple land use) to set up a totally new open communication trajectory, parallel to the EIA process. A COP is installed, which is composed of different inhabitants of the area, experts from the Province and the Water Board, and a process manager. The administrative Steering Group remains in function. The COP is a rather good representation of the different interests: local and provincial governments, the Water Board, farmers, growers and citizens.

When the COP is started (April 2004) the EIA process is just started, and it is very difficult to connect this research process with the COP. The policy process is entirely focused upon the outcomes of the EIA. The governmental intentions are clear: when the analysed impacts of the proposed measures will be positive, the Water Board and Province shall quickly go on with the official administrative procedures to reach a final decision.

When the first results of the EIA in the autumn of 2004 become known, a very interesting dynamic phase begins. The results show that the proposed alternative (retention reservoirs) causes more problems than solutions and that it solves not the problems that it has to do. The research also shows that the problems are less severe than supposed by the governments at the start of the project.

The COP reacts very quickly when these results become public. The COP members decide immediately to pool their knowledge and expertise in a joint proposal, as an alternative for the original solution as studied in the EIA. In a very short time period four members of the COP deliver a rough vision, which is accepted and filled up by the other members of the COP. The result is a much less radical proposal than the original plans. In the COP proposal, all functions (agriculture, recreation, combating seepage) are served. To reduce seepage pressure, the farmers propose to raise the water level in the deepest parts of the polders. In combination with the integral reallocation of land in the

polder, the farmers can combine nature development with their primary business. Contrary to the primary solution, big water retention areas, the problem of salt water is solved with small, specific measurements that make it possible for the farmers to stay in the polder.

Due to the rapid action of the COP the regional government take up the proposal of the COP as a promising strategy that has to be further analysed. The province and the Water Board request an additional analysis of the proposal of the COP. This study has some important characteristics. It consists of an analysis of three alternative project plans, which are compared on their impact on aspects as nature, soil, water quality and quantity, salt percentage, but also on their financial consequences, support from the local inhabitants and consequences for the infrastructure in the polder. In these three alternatives different accents are highlighted: more attention for the current situation and more efficient agriculture (primarily based on ideas of the COP), more attention for nature (based on the ambitions of the Province) and more attention for water (inspired by ambitions of the Water Board).

The consequences of these alternatives are analysed by an independent consultancy bureau. This results in an overview of the strong and weak points of the different policy alternatives. The results were in favour of the alternative of the COP. This generates additional support for the COP proposal.

At the end of 2005 the local and regional authorities decide to implement the main components of the proposal of the COP. The ultimate decision reflects the ambitions of the inhabitants of the area, but also the main ambitions of the province (nature development) and the Water Board (treatment of brackish water; flexible water levels) and the municipality (sustainable economic development). The governmental actors decide to adapt the proposal on some aspects, but these elements are not the most crucial for the COP.

#### **4. Co-evolution through balancing acts**

In this section we zoom in more specifically on the processes of co-evolution in the COP Gouwe Wiericke, both internal and external. As described in section 2, COPs seem, theoretically seen, most effective and innovative when it operates situations of bounded instability. For internal co-evolution

this means balancing between cohesiveness and diversity, for external co-evolution between identity and participation. We will use these concepts to analyse co-evolution in the COP Gouwe Wiericke.

#### *4.1 Processes of internal co-evolution*

##### **Cohesiveness**

Interesting was the very fast adaptation process that occurred between the inhabitants and the officials who participated in the COP. Through intensive interaction and frequent debates a process of joint knowledge production occurred. The problem perception of the project leader from both the province and the Water Board was softened, while the farmers got more insight in the actual problems regarding water and nature within their polder. Mutual trust grew and a shared sense of belonging developed. Moreover, a common sense of urgency united the COP. Their members had a common goal: to develop a realistic and feasible plan to safeguard the future of the polder. When the water retention was proven to be impossible, all members were convinced that the COP had to come with a broad supported alternative.

In this proposal the different interests of the members of the COP were integrated and combined. There was more space reserved for the farmers and growers in the area, nature development was concentrated in the less productive areas of the polder; and there were possibilities for recreation.

##### **Diversity**

The diversity of the COP was guaranteed by the selection of highly diverse actors. All parts of the polder were represented and farmers, growers, and inhabitants participate alongside the delegates of the province, the Water Board and the municipality Reeuwijk. On certain moments in the process these actors brought their opinion into the discussion and the ultimate proposal contained a rather strong combination of different interests and ambitions. For example, after a critical intervention of one of the inhabitants the recreation possibilities in the proposal were extended. And after some interventions of the Provincial project leader the nature possibilities in the proposal were more adapted to the official policy plans of the Province.

There was a danger that a COP came in a situation of stability: people knew each other, developed shared rules of the game, and developed a shared vision and strong group culture, so that fruitful disagreements no longer occurred and innovative and surprising insights were formed (Moss, 2001). It was difficult for COP members to remain critical upon their own results. When feelings of 'being ready' raises too early, the process and the products can flatten too soon. That was a real danger, after the first launch of the COP proposal. The delegates of the Province and the Water Board were aware of this pitfall and proposed a further study of three alternative solutions, in order to get more evidence for the strong points of the proposal of the COP. The members of the COP saw this as a possible threat for their own ideas, but could be convinced of the necessity of this analysis. How?

## **Conclusion**

A COP can be seen as a system, composed of very different elements (actors) with their own logic and their own ambitions. From the literature about innovation we learn that creating diversity in forums can facilitate innovation. The participants from the COP bring their own specific knowledge and interests from their home base. Through such a diverse COP many diverse interests can be confronted with each other and joint products are critically tested. But through a sense of urgency and a shared vision (preserving the polder for the inhabitants), there are also enough conditions for reaching an agreement.

### *4.2 Processes of external co-evolution*

#### **Identity**

The COP gained a strong own position in the policy game around the polders of Gouwe Wiericke. They wanted to safeguard as much as possible the polder for its inhabitants. They tried to convince the politicians about their own proposal to improve the agriculture in the area and proposed some other measures in order to raise the economic potencies of the polder. During this process the members of the COP also promoted their own proposal to their grassroots. Some of them were representatives of interests groups, and they contacted their home bases in order to know the opinion of the non-

participating members of these groups. Other members contacted their direct neighbours and colleagues to get their opinion. With these promotional activities support for the proposal was built. Through interactive meetings the population of the area got the opportunity to react on the proposal. The officials participating in the COP had the difficult task to convince their political principals to take this proposal into consideration in the further planning process. The mindset of the politicians had changed as a result of the EIA, but their opinion about general policy strategies that have to be implemented in their jurisdiction had to be abandoned and replaced by the more adaptive approach of the COP. The officials functioned as good liaison managers to defend the alternative proposal of the COP. Their work was complemented with direct interaction between the COP and the Steering Group (local and provincial authorities and representatives of the Water Board).

### **Participation**

On the other hand, the COP tried to adapt its activities and ambitions to its environment and the developments at the side of Province, Water Board and municipality. The COP members tried to influence the research in the EIA by proposing alternative research questions and launching different opinions to be taken into account. They inform researchers with specific knowledge about the area in order to prevent them for using wrong data and assumptions about the problems of the farmers. When the EIA resulted in the clear message that the official proposal was impossible, the COP reacted immediately with developing an own plan. This plan was adapted to existing policy ambitions and was completed with ideas from the spatial vision of the Reeuwijk municipality. In consultation with the alderman of the municipality of Reeuwijk this vision was confronted with the ideas of the COP. This confrontation and the resulting merge between these plans enlarged the potential of the proposal of the COP greatly. In order to convince the Province and the Water Board, the COP made its own proposal subject to an independent comparison with two alternatives.

A strong point was the connection the COP made with the Concept Environmental Policy Plan of the Province. In their proposal some 80 hectares additional nature area was realised, compared to this plan. In combination with water retention this formed a strong element, because it fitted in the policy strategy of the province.

## **Conclusion**

Staying at the edge of chaos means that a COP develops its own identity and tries to realize that the environment adapts to its views, visions and interests. By giving information to experts and politicians, organizing communication with the inhabitants, and adapting their own ideas as much as possible to other actors' ambitions, the COP tries to convince and commit organizations in the environment to the ideas and plans the COP develops. Especially this interaction between adaptation and influencing is the heart of staying at the edge of chaos in a process of external co-evolution.

## **5. Managing co-evolution**

In this section we try to gain insights from our case study Gouwe Wiericke for management of internal and external co-evolution. How can these two forms of co-evolution be created? Creating and maintaining bounded instability between too much diversity and too strong cohesiveness in a COP can be facilitated by:

- Selecting highly different partners from all relevant stakeholders and knowledge owners. In our case: farmers, growers, inhabitants, delegates from Province, Water Board and municipality;
- Stimulating debate and competition between different values and interests and at the same time using a common sense of urgency (official deadlines for this project) and/or a shared enemy (the water retention and the devaluation of the polder) in order to stimulate the development of shared ambitions;
- Prevent feelings of 'being arrived': the diversity, dynamics, and fruitful tensions have to be safeguarded when a COP functions well. After a very dynamic start, a COP comes in tranquil waters. That is good, but too much 'peace and love' distorts the quality of the results.

For external co-evolution, creating and maintaining bounded instability between too much openness and adaptation of a COP in relation to its environment on the one hand and too strong closeness and isolation on the other hand can be organised through:

- Positioning the COP outside the hierarchy and procedures of the public sector, while striving for a fruitful relation with the relevant public actors in order to secure the relevance and of the COP and the utilisation of its products;
- Keeping the process as long as possible open, but also striving for regular points of freezing concrete results and conclusions;
- Keeping the COP as independent as possible, but also maintaining fruitful relations with the public sector in order to keep relevance;
- Combining an independent process manager who defends the interests of the COP and delegates from the governmental actors who defends the policy ambitions.

In our case we see some organisational arrangements or management interventions within COPs, which are meant to deal with the challenge of staying 'at the edge of chaos'.

[table 1 about here]

	<b>Internal co-evolution</b>	<b>External co-evolution</b>
<i>Central dilemma</i>	<ul style="list-style-type: none"> <li>• Creating enough diversity, while maintaining group cohesion</li> </ul>	<ul style="list-style-type: none"> <li>• Safeguarding a safe haven for the COP but maintaining fruitful relations with the sponsors</li> </ul>
<i>Organisational arrangement or management intervention</i>	<ul style="list-style-type: none"> <li>• Diversity: Organize regularly confrontations with criticisers from outside the COP, or point deliberately devil's advocates in the COP, or specifically get a person with diverging ideas in the COP (a skunk).</li> <li>• Cohesiveness: Develop group culture and a sense of belonging by frequent interactions between the COP members, informal meetings, brainstorm sessions and creating a shared enemy.</li> </ul>	<ul style="list-style-type: none"> <li>• Safe haven: create moments of internal consideration through long sessions (couple of days), set the rule of 'delay of comment' on ideas so that only positive criticism is given and people are less reluctant to disclosure their ideas.</li> <li>• Interrelation: create information channels to organizations outside the COP, give room to COP members to update their home organizations and create their commitment, seek media attention for diffusion of ideas and plans, strive for good liaison managers between sponsors and COP.</li> </ul>

Table 1

### Managing co-evolution

## 6. Conclusion

In this article we analysed a recent phenomenon in Dutch spatial policy, Communities of Practice (COP) from a co-evolutionary point of view, especially from the perspective of staying at the edge of chaos. We conclude that, in potency, a COP has enough possibilities to remain on this fruitful edge. But, there are also dangers for a COP to become too stable or to become totally instable.

Too much willingness to adapt to each other, too much consensus can result in groupthink and generates a situation of too much stability. The result of that can be a weak compromise, with a less innovative character. However a COP primarily focused on internal competition, with weak relations and much distrust between its members generates too much instability. The chance that a joint proposal is launched is small.

Regarding the external dimension of co-evolution we see that stability can arise from a totally independent or dependent position a COP takes in relation to public actors (as their sponsor or customer). Too much stability can result in useless results, too little anchorage of the process in the formal political procedures, no support of officials and grass roots organisations. The danger of instability lies in a process in which the COP uncritically follows its environment. In doing so it has no added value in the search for novel solutions for persistent policy problems.

A co-evolutionary perspective gives new meaning to the functioning and success of a COP that it deals with the ambivalent position a COP has. COPs have to evolve on the edge of chaos, both internal and external, balancing between the dilemmas of at the one side diversity and cohesiveness and at the other side identity and participation (Oliver & Roos, 1999). Translating these theoretical principles into practical management prescriptions seems to be a promising job to facilitate innovation and progress.

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