

# Doing more while remaining the same? Flood risk governance in Poland

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## Abstract

This paper presents how the approaches to flood risk in Poland have evolved over the last 25 years. The reliance on structural defence and on the state as the key responsible actor was challenged by four triggering events: two large floods; the collapse of the communist system; and the European Union accession. The paper reveals that (1) the radical transformation of the political system did not lead to significant changes in flood risk governance; (2) changes in response to disastrous floods are incremental. Despite the pressures, the Polish flood risk governance preserved its core functional characteristics. Until the 1997 flood, it exhibited the exhaustion mode of institutional dynamics, with issue marginalisation and poor financing, while after this flood, the layering-type mode prevailed, where innovative ideas were accommodated by the established system. The analysis of the Polish flood risk governance dynamics suggests that changes cannot be taken for granted, even facing significant pressures and windows of opportunities.

## Introduction

Flood risk is likely to have increased in many countries, due to at least three main factors: (1) urbanisation in flood-prone areas (Schultz, 2006); (2) climate change (Lorenzoni *et al.*, 2016); (3) economic growth increasing welfare at risk and damage potential (Bouwer *et al.*, 2010). Flood consequences can be quantified, but their impact and significance for domestic flood risk governance is context specific. Both catastrophic floods and the threat of such events ('near floods') are put forward as 'focusing events', the significance and meaning of which is relatively open to interpretation and thus subject to alternative explanations (Boin *et al.*, 2009). Such disastrous phenomena open windows of opportunity for different actor groups to introduce new ideas (Kingdon, 1984) and call for institutional changes. There is a pattern of periods of stability alternated with brief periods of more radical change of flood governance that emerge as an outcome of such events (Wiering *et al.*, 2015; Mees and Crabbé, 2017). Nature-driven phenomena, such as climate change, can cause changes within administrative systems which are not simply symbolic (Edelman, 1967) but also substantial (Garrelts and Lange, 2011; Dupuis and Biesbroek, 2013).

This paper focuses on the stability and change in flood risk governance in Poland, where flood risk has been rising, similarly to other European countries. According to the Polish National Crisis Management Plan of 2012, more than 1000 municipalities (out of 2500) are now exposed to flood risk, and this exposure is likely to increase in the future, in accordance with the general pattern. Climate model simulations indicate a general increase of frequency and amplitude of heavy precipitation likely contributing to the growing problem of urban floods and flash floods (Pińskwar, 2010). Moreover, urbanisation in flood-prone areas is increasing, intensified by aspiration to accelerate economic growth (Kundzewicz and Kaczmarek, 2000).

There are reasons to expect that Poland's flood risk governance could have changed within the last 25 years, as the country experienced two catastrophic floods, causing significant strains for the state budget. The Millennium flood of 1997 (with dramatic consequences in the basin of the River Odra – Kundzewicz *et al.*, 1999) and the flood of 2010 (in basins of both large rivers in Poland – the Vistula and the Odra) killed dozens of people and caused material damage of approximately €3 billion each (Kundzewicz *et al.*, 2012). Moreover, apart from the occurrence of two dramatic floods, there have been two other milestones in

Poland in the last 25 years that could have influenced flood risk management: the fall of the communist system in 1989/1990 and the entry of Poland to the European Union in 2004. The former initiated transformation of the whole economic, political, and administrative system, impacting flood risk governance. The latter involved the implementation of EU directives, in particular the Water Framework Directive (WFD) and the Floods Directive (FD), that significantly influenced Polish flood risk governance (Table 1).

In such a multi-factor context, Poland can be considered as an interesting case to analyse flood risk governance dynamics. Influence of natural and societal events on flood risk governance dynamics are often taken separately, while the Polish case, presented in this paper, embraces both categories. Moreover, a significant body of literature focuses on flood risk governance changes in mature and stable democratic systems, whilst Poland is a transitional case of new democracy. In this paper, the following questions are asked: (1) to what extent has flood risk governance in Poland been impacted by four specific milestones that occurred in the last 25 years? and (2) to what extent has the traditional defence-oriented approach persisted and to what extent was it replaced or supplemented by additional measures? The paper aims to assess both the type and the degree of changes within Polish flood risk governance. Firstly, Poland's high susceptibility to floods and the occurrence of far-reaching political-administrative events leads to the expectation of significant changes in flood risk governance. Secondly, we hypothesise that changes in flood risk governance, in response to disastrous floods, are more radical than incremental.

## Conceptual framework of the analysis

Flood risk governance refers to governing, decision-making, and policies including engagement of both private stakeholders and non-governmental sector (McDaniels *et al.*, 1999). It involves public administration and utilises public resources. Its forms, measures, and scopes are subject to change, in a country-specific context, depending on national traditions, sources of risk in a country, changes of

flood risk, public perception of flood risk (Maczak *et al.*, 2016) as well as available economic resources. The Policy Arrangement Approach offers a framework enabling examination of flood risk governance, distinguishing four complementary dimensions of flood risk policies: actors, resources, rules, and discourses. They constitute an arrangement: the temporary stabilisation of the content and organisation of a policy domain (van Tatenhove *et al.*, 2000).

Taking into account these dimensions, Wiering *et al.* (2018) propose a theoretical background for empirical study of stability and change in flood risk governance. Based on a literature review, Wiering *et al.* (2018) composed a table containing 'forces of stability' as well as 'forces of change'. The forces of stability and change are related to the four dimensions discerned in the Policy Arrangements Approach (PAA), cf. Table 2.

The forces presented in Table 2 are used as guiding arguments for explaining stability and change in flood risk governance in Poland. With this analytical scheme, one needs to avoid focusing either on forces of stability (e.g. lack of policy coordination, sunk costs) or on forces of change (e.g. the role of policy entrepreneurs, cf. Meijerink and Huijtema, 2010), as this would lead to rather exclusive and diametrically opposed concepts of change (Streeck and Thelen, 2005) and to treating actor coalitions taking part in a 'framing contest' (Benford and Snow, 2000; Meyer and Hoellerer, 2010; Fligstein and McAdam, 2011). Transitions in Eastern Europe had a form of a major shift and then discontinuous evolution (Baumgartner and Jones, 1993; Nielsen *et al.*, 1995). Historical experiences or policy priorities shaped current action as well as actors' responses to new challenges (Sehring, 2009). Systemic political shifts, such as transition from the Soviet-type, centralised system, and planned economy towards democracy and market economy opened opportunities for redesigning flood risk governance. Involvement of non-state actors and improvement of efficiency based on economic incentives are the features of the modernised governance (Markandya and Chou, 2010).

Thus, the change cannot be simply binary. Instead, Streeck and Thelen (2005) propose a more refined typology of gradual transformation, distinguishing five main forms

**Table 1** Events of significance for the Polish flood risk governance (1990–2015)

Year	Milestone	Characteristic
1989/1990	Fall of the communist system	Systemic transformation of the country
1997	Millennium flood of 1997	Regional and national flood defence infrastructure projects initiated; Development of the crisis management system
2004	EU accession	Legislative changes, introducing new standards, and methods of compliance measurement
2010	Flood in the basins of the Vistula and the Odra	Test for the previously improved flood protection infrastructure and crisis management

**Table 2** Forces of stability and change, associated with the dimensions of policy arrangements (adapted from Wiering *et al.*, 2018)

Forces of stability	Dimensions of policy arrangements	Forces of change
- <i>Coordination effects</i> : governance is sedimented in specific divisions of accepted responsibilities	Policy actors and coalitions	- Policy entrepreneurs highlighting perception of sub-optimality of governance and approach - Strong pressure by specific interests (actor coalitions – rent seeking)
- <i>Fixed costs and increasing returns</i> through large investments in flood infrastructure (sunk costs) - <i>Learning effects</i> : evolution of strong expert body of knowledge and stable epistemic community	Power and resources	- Criticism on increasing costs of flood infrastructure / maintenance or sudden financial cutbacks, opening alternative options - New expertise (learning)
- <i>Law</i> has an important stabilising effect in the formalisation of rules and procedures	Rules of the game	- Decreasing legitimacy of existing rules via multiple amendments to the Water Law - New rules (e.g. EU Floods Directive)
- Strong historical narratives - <i>Adaptive expectations</i> : public trust in existing institutions and their efficiency	Policy discourses	- Diminishing trust in existing institutions and their efficiency - New ideas, new problem definitions, and policy concepts leading to counter-narratives

(Table 3). This typology will be used in order to assess the degree and type of change within Polish flood risk governance.

## Methods and data

The research, the results of which are reported in this article, has been carried out in the framework of the EU-FP7 STAR-FLOOD project ([www.starflood.eu](http://www.starflood.eu)), which compared flood risk governance in six EU Member States. The article is based on the detailed description and evaluation of the evolution of flood risk governance in Poland (Matczak *et al.*, 2015). The research has been conducted via analysis of legal acts, policy documents, reports, 'grey' literature, and semi-structured interviews, that were analysed via qualitative thematic analysis. In total, 54 governmental and non-governmental stakeholders were interviewed. Primarily, these stakeholders were public officials at different policy levels: local (in three locations affected by recent

floods), regional, and national ones. The results of the research have been presented, discussed and validated during, amongst others, a national workshop (Choryński *et al.*, 2016), after which the results were refined.

## Current state and ongoing trends of flood risk governance in Poland

In general, structural defences, such as embankments, dikes, by-pass channels, polders, dams, and reservoirs engage the vast majority of resources in the Polish flood risk governance. Other approaches, namely emergency management and spatial planning, are under development. Implementation of green urban infrastructure together with insurance system are either in the infancy stage or develop rather separately (Łasut, 2006).

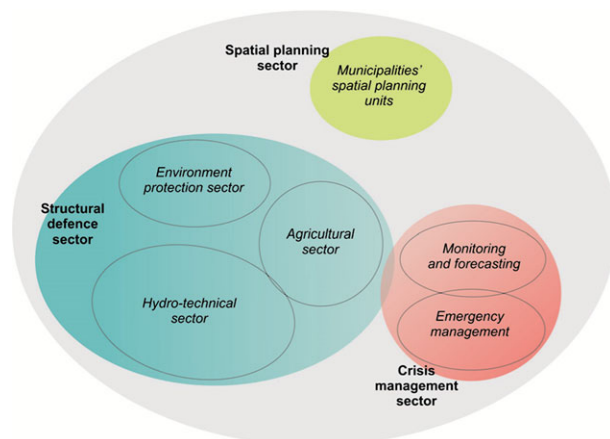
Clear dominance of the traditional hydro-technical defence approach can be recognised at both the national and the regional levels. The provision of resources is

**Table 3** Five modes of gradual transformation (adapted from Streeck and Thelen, 2005)

Mode	Definition	Mechanism
Displacement	Slowly rising salience of subordinate relative to dominant institutions	Defection
Layering	New elements attached to existing institutions gradually change their status and structure	Differential growth
Drift	Neglect of institutional maintenance in spite of external change resulting in slippage in institutional practice on the ground	Deliberate neglect
Conversion	Redeployment of old institutions to new purposes; new purposes attached to old structures	Redirection, reinterpretation
Exhaustion	Gradual breakdown (withering away) of institutions over time	Depletion

strongly centralised. However, despite large investments in structural protection, the concerns about flood damages have increased. Since virtually all recent major flood losses have been related to dike failures, the protection was found insufficient (NIK, 1998). This situation undermined the trust in the effectiveness of the structural defence strategy. As a result, other measures within flood risk governance, supplementing the dominating defence approach, gained increasing importance. Notably, an emergency management system has been formed, largely replacing the defence-related bodies, formerly responsible for managing natural disasters and linked to the defence. The Crisis Management Act of 2007 established a system covering all hazards, including floods. The increasing significance of the emergency management system was facilitated also by the increasing role of State Fire Brigades, providing operational capacity for crisis management. Nowadays, emergency management is considered to work effectively and plays an important part in the overall system of flood risk governance in Poland. Its operations are widely supported by the public (CBOS, 2010a, 2010b).

The significance of spatial planning for flood risk governance is increasing in Poland, however mostly at the level of discourse (Greiving *et al.*, 2006). Despite its high potential for flood risk governance, spatial planning lies mainly within the responsibility of local governments, with little coordinative or steering role at the regional level (Kowalewski *et al.*, 2013). Consequently, the legal definition and the practical implementation of spatial planning do not improve flood risk governance. Despite binding legislation with respect to limiting or prohibiting developments in flood-prone areas (De Moel *et al.*, 2009), municipalities prioritise economic development which results in investments in these areas (NIK, 2013).



**Figure 1** Fragmentation of Polish flood risk governance (based on Malczak *et al.*, 2015).

Retention measures, such as water infiltration measures, are at the pilot stage. Green urban infrastructure is implemented mainly for aesthetic reasons and not considered important for mitigating flood risks in urban areas. Recovery measures taken after flood events can also be considered as being implemented in an *ad hoc* manner rather than being fully developed and consolidated. Altogether, the Polish flood risk governance consists of three, rather separated, sectors with their own rules, actors, resources, and discourses (Figure 1).

The relative position of organisations dealing with floods remains stable, mainly due to steady provision of funds for their tasks. The Polish flood risk governance is rather fragmented with underdeveloped mechanisms linking sectors (Gilissen *et al.*, 2016). This is a result of cross-responsibilities (i.e. parts of the flood risk policies are assigned to different ministries).

## Forces of stability and change in four dimensions of PAA

In this section, an overview is given of the factors fostering and hampering the dynamics of Polish flood risk governance.

### Forces of change in Polish flood risk governance

Certainly, Polish flood risk governance arrangement (FRGA) has undergone a significant evolution over the last 25 years. This evolution was substantiated by several forces of change (Table 4). Following four subsequent milestones, their relative importance for flood risk governance will be elaborated in this section.

The first milestone was the fall of the communist system in 1989/1990. The market economy principles, clear budgets constraints, and transparent tendering procedures introduced after 1990, implied a break with previous practices. The role of financial indicators in flood risk management increased. For flood risk governance, the transformation involved clarification and redistribution of property rights, tasks, and responsibilities among the administration and creating water administration based on the river basin borders (Kowalczyk *et al.*, 2013). This reform, implemented in 1992, referred to the idea of integrated water resources management, assuming that for proper management a certain fit between the hydrological processes and administrative borders and operations is required. This approach was advocated by environmentally concerned actors, such as experts from academia and non-governmental organisations. Moreover, some hydrologists, both academics and practitioners adopted this approach,

**Table 4** Forces of stability and change affecting the Polish FRGA according to the PAA dimensions

Stabilising impact	PAA dimension	Changing impact
Lobbying, competition and bargaining by sectoral actors	Actors	Policy entrepreneurs, new actors broaden the scope of flood risk management
Inhabitants' high reliance on the State, that covers the costs of recovery (weak individual responsibility)		Environmental non-governmental organisations advocate the environmental concern in flood risk management
Investing in flood infrastructure as sunk costs, scarcity of financial resources in 1995–2008	Resources	Incorporation of stricter budgeting and financial planning New sources of finances (the EU funds)
Professional conduct and routines of the water sector	Discourses	Environmental discourse legitimised by the EU policies and sustained by professionalised international non-governmental organisations
Revisions of the Water Act increasing room for discretion for dominant actors and stabilising status quo	Rules of the game	Transposition of the EU law triggers cooperation between scattered coalitions of actors Tendering procedures

being dissatisfied with the ineffectiveness of the traditional defence strategy. This dissident group managed to be present in the professional discussions and in the media. Environmental non-governmental organisations activists and outsiders of the hydro-technical world (including retired experts) developed into a network of policy entrepreneurs.

In terms of the legal rules of the game, the systemic transformation entailed the rebirth of local government as a legal subject. The legal recognition of local governments and civil rights of individual citizens necessitated balancing the public interest and interests of various stakeholders. It is contrary to the previous system when the peoples' interest, defined by the ruling communist party, dominated. Reforms of administrations were followed by transferring substantial financial and material resources to the area of improving water quality. It is an example of a significant change in terms of both governance (sudden change of property rights, decentralisation, use of market forces for valuation) and outcome (impressive progress in water quality infrastructure development, e.g. construction of wastewater treatment plants and sewage systems). Compared with drinking water provision and sewage treatment, flood risk governance was much more stable. The development of flood risk governance received less political support and was inadequately funded. This led to further depreciation of flood infrastructure (NIK, 1998). Last but not least, the media, which after 1990 started to work without the one-party dictate, got entangled in economic and political interests and started to influence the discourses on flood risk governance.

The first example of such a 'framing contest' (Boin *et al.*, 2009) on how to interpret a disastrous event in terms of its causes and lessons, that led to shifts within Polish flood risk governance, was triggered by the Millennium flood of 1997. It became a burning policy issue and showed that the existing flood risk governance was

inadequate and insufficiently funded (Kalb and Tak, 2006). The poor condition of flood defence infrastructure and underinvestment were discussed by the media (Kaufmann *et al.*, 2016 in review) and this had its impact on discourses, and related decisions.

Following the accession to the EU in 2004, Polish flood risk governance started to be shaped by two main drivers: the existing domestic legal acts and programmes, and the requirements of European Union legislation. Changes in the Polish legal system, along with the gradual modification of the existing regulations and administrative structures, were strongly related to the efforts to comply with both the WFD and the FD. However, while the National Programme for Municipal Wastewater Treatment was successfully completed, the flood management programme has not yet been satisfactorily finished.

Another important component of the current shape of the Polish flood risk governance is the growing significance of actors interested in environment protection and nature conservation in particular (Kowalczak *et al.*, 2009; Cent *et al.*, 2013). It is related to the establishment of the Natura 2000 biodiversity protection network which reinforced professionalisation and institutionalisation of civil society groups (Börzel and Buzogány, 2010). Formal rules, i.e. the EU legislation started to be effectively utilised as an 'external' legitimation for criticism on the defence strategy and for discussing alternatives. First, environmental concerns using strategic litigation started to be advocated by a minor but noticeable group of experts. Second, the significance of non-governmental organisations interested in environmental protection and in local development increased. Altogether, a more general trend of including the environmental aspect into flood risk governance can be noted. This has led to several joint-venture pilot projects, for instance in the Odra River Basin and other locations, supported by governmental actors and non-governmental organisations such as World Wildlife Fund.

The EU accession was also successfully used by dominant actors (and relevant ministries). Growing financial resources, backed by EU funding, became available. At the same time, a trend towards financial robustness of flood risk governance can be noticed with simultaneous growth of strictness of regulations about the financial aspect of investments and maintenance (i.e. strict tendering procedures). A general trend towards self-financing of water management by users, instead of financing by the state budget from taxes, applies also to flood risk governance, however, mostly rhetorically.

In 2010, another widespread and destructive flooding opened a new window of opportunity. This flood event accelerated the implementation of the FD, which had been lagging behind. Efforts to implement the Directive also partially started to compensate the lack of a national flood strategy. A clear growth of importance of the environmental aspect of flood risk governance and non-traditional approach can be attributed to the influence of the FD.

### Forces of stability in Polish flood risk governance

In this section, factors hampering the dynamics of the Polish flood risk governance (Table 4) are discussed. First of all, the hydro-technical sector has consistently had a clear and strong interest in sustaining investments. Despite continuous underinvestment in the water sector (Kindler *et al.*, 2014), large-scale hydro-technical investments have traditionally given jobs to many cooperating companies and until this day this advocacy coalition is able to form political pressure to mobilise resources. Besides, the actors' fragmentation forms a barrier to change. The bodies and administrations are linked to ministries and are driven by independent, partly conflicting, interests. Lobbying for budgets to 'feed' administrations' capacities is noticeable. At the same time, the fragmentation creates a certain openness of the arrangement, which can be beneficial for policy innovation, such as the Flood Leaders project established in Wrocław as a result of insufficient action and resources.

Promoting investments in hard protection enhances development in flood-prone areas which in turn enables water managers to demand investments, maintenance, and further development of defence infrastructure (White, 1945). Another justification for sustaining the defence approach stems from the fact that Poles see the state as the entity responsible for flood risk management. These adaptive expectations (see Table 2) foster further investment in hard infrastructure. This lock-in effect is noticeable.

The 1997 and 2010 floods demonstrated the inadequacy of the classical defence approach and offered a window of opportunity for major changes and overcoming the historically institutionalised and previously established routines.

However, the change has been slow. For instance, the national Programme for the Odra – 2006, developed after the 1997 flood - turned out to rely mostly on the traditional infrastructural approach despite initial plans aiming to integrate technical and non-technical measures (NIK, 2011). With active lobbying of the hydro-technical sector, main investments were channelled to structural measures, such as embankments and storage reservoirs. Although the hydrological modelling and the warning system were significantly advanced, attempts to create a nation-wide flood insurance system were unsuccessful. Insurance develops along with the growth of the mortgage market, where insurances are compulsory, and these include flood insurance as a part of a premium package. Thus, this is realised rather separately from flood risk governance. Moreover, because the crisis situation in 2010 was managed well despite serious threats, the flood had no significant changing effects upon flood risk governance.

The accession of Poland to the EU in 2004 involved transposition of the EU legislation into the domestic legislation. Implementation of the FD was expected to enforce the appropriate, and needed, zoning based on the fair principle that 'the risk-taker pays' (Kowalczak and Kundzewicz, 2011). Thus, the FD stressed the significance of floodplains in terms of their retention properties and triggered activities to differentiate the hazard level in floodplains, related to flood occurrence probability. This resulted in a clearer and more comprehensive legal basis, e.g. for designating particular types of floodplains (Głosińska, 2014).

Flood risk governance is rather exclusive in terms of actor involvement and the implementation of the FD did not change that. For instance, the involvement of society in defining the aims of the Directive and the ways of achieving them was quite low and rather reactive to the process. Similarly, emergency management organisations were involved in the elaboration of Flood Risk Management Plans only at a later stage, which led to little operational usage of the produced documents. One could argue, however, that the FD impacted the Polish flood risk governance legislation in a more specific sense. Its procedural requirements (e.g. issuing flood hazard and risk maps) were used to strengthen existing instruments and to develop new ones. The Water Act had to be amended according to the FD requirements. Nevertheless, it has not acquired a clear steering function yet. In fact, numerous amendments to the Act are more 'new by-laws and interpretations of existing law to accommodate exceptions', rather than tools for strengthening innovative approaches and for experimentation (Pahl-Wostl, 2009). Thus, the Water Act was instrumental mainly as an accommodating tool: the transposition of the EU legislation was used to sustain the existing structural defence sub-arrangement. Altogether, the FD did not play a significant changing role.

On the discursive level, the hydraulic mission is deeply rooted in the professional spirit of water managers in Poland. Moreover, protection by flood infrastructure provided by governmental actors is also widely expected by the public. A counter discourse advocating pro-environmental measures in flood risk management is getting more attention but has remained a marginal voice in terms of substantive decisions.

## Path-dependence and gradual transformation in Polish flood risk governance

In previous sections, characteristics of Polish flood risk governance in terms of actors, rules, resources, and discourses, as well as the impact of milestones in relation to forces of change and stability were presented. The aim of this section is to further analyse Poland's flood risk governance dynamics, by combining these two forces together under the concept of institutional change.

The dynamics of Polish flood risk governance was influenced by different events among which were flood events, but also administrative-political reforms. At the same time, since 1990 forces of stability and change have revolved around two main principles namely that: (1) Flood can be prevented, and (2) Flood management is the domain of the State. Despite several superficial changes, these two principles remained a strikingly stable core of flood risk governance in Poland. The impact of these principles will be discussed in this section, according to the modes of institutional change proposed by Streeck and Thelen (2005).

### Flood can be prevented

The dominant discourse of 'flood can be prevented' remained unchanged despite events that challenged it. After the flood of 1997, it became clear that flood preparedness is not up to the aspirations. The system failed but it was decided to do the same things better (i.e. strengthening structural defences), rather than to rethink and eventually change a paradigm – the dominating defence strategy. The same applies to the EU accession, when new sources of funding became available for flood risk governance which were successfully channelled to finance flood infrastructure. Above all, little political and financial incentives, such as for instance financial instruments dedicated to non-structural measures in urban agglomerations, have been elaborated to change the scope of existing measures at both regional and local level. Adaptive capacity to a new set of risks (e.g. urban floods) remained underdeveloped in flood risk governance.

Furthermore, persistence of the structural defence sector remained unchanged also despite the implementation of the FD. The elaboration of flood risk management maps and plans should have been announced to society, as an element of public participation. It was mandated by the Water Act but since flood management is considered as a highly professionalised and technical issue both by hydro-technicians and the broad public, implementing of the FD was a top-down process with little involvement of other actors and sectors, such as the emergency management actors or the public. Public participation was limited to being informed (Mees and Crabbé, 2017, submitted). It strengthened a stalemate where, on the one hand, the public shows little interest, while on the other hand, there is a narrow space for involvement.

Finally, although the idea of green urban infrastructure and the discourse of 'giving space for the river' (Woltjer and Niels, 2007) started to be stressed in official programmes and policy documents, little has been done to translate these into operational means. Besides, this also exemplifies the role and significance of policy documents, where such concepts appear as dead letters, by merely using the 'sustainability' rhetoric.

### Flood management is the domain of the State

A second driver for the stability of Polish flood risk governance is the consideration that the State (i.e. governmental actors) is responsible for flood management. This firm conviction has not been weakened after the fall of communism in 1989/1990. Involvement of citizens and non-state actors in flood risk management has remained limited. After the 1997 flood, there was a consensus that flood risk governance needed a reform in order to function more effectively. The legislative and financial reaction was that additional organisations were included into the flood risk governance, namely the Hydrometeorological Service, the State Fire Brigades, and municipalities. Nevertheless, cooperation between these three actors and the governmental bodies that had been traditionally responsible for flood risk management (i.e. National and Regional Water Management Boards) did not challenge the dominance of the well-established structural defence approach.

Moreover, the evolution of flood risk management happened regardless of *non-decisions* of flood policy makers. After 1990 flood risk governance largely remained in its old form, despite significant transformation of the whole economic, political, and administrative system. The advocates of the establishment of water administration based on river basins borders were mainly experts from academia and non-governmental organisations, thus external to the flood risk governance administration. The dominance of the state in the Polish flood risk governance continued after the EU

accession. Although new tendering procedures and public participation procedures became obligatory, these did not significantly influence the hierarchy of governmental and non-governmental actors. The 2010 flood raised the issue of spatial planning, which could alter the existing flood risk governance. The implementation of the FD, influenced by this flood event, required municipalities to consider spatial planning in relation to flood risk. Nevertheless, municipalities remained reluctant to treat flood risk and hazard maps as obligatory documents. Thus, flood risk management as the domain of the State was eventually reaffirmed rather than undermined.

In terms of Streeck and Thelen's (2005) modes of gradual transformation, the Polish flood risk governance can be interpreted as a combination of exhaustion and layering (see Table 3). In the period of 1990–1997, exhaustion prevailed. Due to a gradual withering away of institutions, the capabilities of the system weakened. Flood risk governance was effectively marginalised, in terms of political attention and financing. The sector was a victim of more urgent and vital needs in other sectors. The flood of 1997 as well as the following ones triggered innovations and changes. They were, however, accommodated by the *modus operandi* of the existing system. The development of Polish flood risk governance exhibits strong institutional path dependency. The historically established hydro-technical approach has sustained its dominant position in flood risk governance. Efforts taken to challenge this situation were rather additive to the *status quo*. For instance, the establishment of the crisis management system strengthened flood risk management. The response potential was developed, but it did not undermine the defence reliance of the existing flood risk governance system. The two large floods appeared as big issues on the political and public agenda, but failed to entail substantial and intentional evolution in the domain of flood risk governance.

This stability does not, however, mean that flood risk governance 'survived' without any changes. For instance, amendments to the Water Act show changes as additive to the existing body of legislation and increased legal inconsistency rather than improving its clarity. This mechanism can be considered as differential growth and layering (cf. Streeck and Thelen, 2005).

## Conclusions

In this paper, we asked to what extent flood risk governance in Poland has been impacted by four important events (two large floods and two socio-political turning points: the collapse of communism and the EU accession) that occurred in the last 25 years or so and how these events contributed to the evolution of flood risk governance. Two

expectations were formulated, namely that: (1) the radical transformation of the economic and political system has led to a significant change of flood risk governance, and (2) in such circumstances, changes were more radical than incremental.

Concerning the first expectation, the analysis leads to the conclusion that the Polish flood risk governance is rather stable. The quantifier 'rather' applies because several changes have indeed occurred within the analysed period. They did not constitute a fundamental change of the system, though. The structural defence approach towards flood risk management has continued to be dominant. This is partially due to the fragmentation of flood risk governance. The relevant administration units are linked to different ministries and are driven by independent, at times conflicting, interests. The status quo within Polish flood risk governance was maintained despite external triggers, such as the EU accession, which were accommodated without radical redirection of formerly established paths.

The outcome regarding the second expectation is also negative. Considering the impact of two devastating floods and the massive efforts in the aftermath of the systemic transformation and the EU accession, one would expect radical changes in Polish flood risk governance. It appears, however, that breaking away is hard. Changes occur, but are incremental and, moreover, lack strategic direction. The absence of rapid and radical change is due to two reasons. Firstly, the systemic transformation started with the fall of the communist regime and this opened a huge window of opportunity for institutional change that was used in many areas of economic, political, and social life. However, it did not apply to flood risk governance. It can be argued that flood risk governance was a victim of the large scale of shifts during the transition period. It appeared as an issue of secondary importance, compared to others. A striking example is provided by the comparison with the water quality area, where the change was dramatic in terms of both governance and outcome. Compared with the water quality sector, flood risk governance is different. It is not the same for all the municipalities and it is not an everyday problem.

Secondly, a system of flood risk governance based on structural defence, involves a large and accumulated amount of infrastructure, which is expensive. These sunk costs, together with actors involved in operation and maintenance of infrastructure form a pressure to continue the approach. Lack of expertise in strict economic analysis (e.g. cost-benefit analysis, net profit value) of public investments may also have a certain impact in this respect.

In terms of institutional change, the paper indicates two principles driving Polish flood risk governance. Firstly, it is



the idea that floods (as a natural disaster) can be prevented. It is backed up by a set of rules defining operations of relevant bodies. Although advocates of new approaches such as 'making space for river' are gaining attention, a general agreement prevails on the necessity of structural protection. It is manifested by related legislation, prioritising measures, channelling resources, and by the general public view. Secondly, it is firmly believed that flood management is the sole responsibility of the State. Thus, on the one hand, flood risk governance remains under the authority of the hydro-technical sector, which deals with threats and is able to form effective political pressure to achieve its goals, e.g. to secure resources for investments. On the other hand, there is a wide expectation among Poles that the government is essentially responsible for flood protection.

The operation of the flood risk governance after 1990 could be described as exhaustion, characterised by a gradual withering away of institutions, caused by a lack of interest of decision makers and underfinancing. The old system remained institutionally intact but its capabilities weakened. Also, it hardly fitted to demands of the new economic, administrative, and political system, that required decentralisation, engagement of the public, and cost-effectiveness of the measures. A change could be expected as the result. Indeed, since the 1997 flood, layering, entailing the accommodation of innovations by the established system, has dominated. Notably, development of the crisis management improved flood risk governance as the flood of 2010 showed. The damage in 2010 was unavoidable, since the levees broke, yet managing the crisis was considerably better, according to experts and the public opinion. Nevertheless, the developments were supplementary to the old governance system and have not constituted a paradigm change. The flood of 2010 shows paradoxically that innovations stabilise the existing model of governance, with the 'flood can be defeated' discourse, while losses are still substantial, proving that the discourse is inadequate.

Altogether, given strong stabilising forces, even such strong impacts as the two disastrous floods and the fundamental socio-economic transformations (the fall of communism and the EU accession), resulted in gradual changes, only modifying the conduct and supplementing the existing system. The paper focuses on the institutional setting, leaving aside the political circumstances, international cooperation of ministries, the role of individuals, which requires more data and further analysis.

The analysis of the Polish flood risk governance dynamics, suggests that changes cannot be taken for granted, even facing significant pressures and windows of opportunities. This illustrates the decisive multi-factor characteristic of institutional change. Any intentional effort to reform flood risk governance has to deal with a complex and entangled system.

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