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#### D4.1: Assessing how Policies enable or constrain the Resilience of Farming Systems in the European Union: the Resilience Assessment Tool (ResAT)

Work Performed by P1, Wageningen University & Research (WUR)

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## 1 Introduction

European farming systems face a broad range of environmental, economic, social and institutional risks, such as price fluctuations on liberalised markets, more frequent extreme weather events and vulnerability to geopolitical developments that affect trade patterns and opportunities. Besides these often very sudden shocks, Europe's farming systems are also subject to long-term stressors that slowly but continuously change the context of their operations and increase systemic vulnerabilities, such as climate change, rural outmigration or growing societal concerns about the environmental and health effects of specific methods of production or of entire production systems. As most farming systems in Europe are regional and specialised, these risks and uncertainties differ across regions, subsectors, farm types, and farming systems. Therefore, the SURE-Farm project focuses on the resilience of European farming systems.

In the SURE-Farm Project we use insights from resilience theory to investigate the ability of farming systems to cope with risks, shocks and uncertainties. Resilience theory encompasses a broad, multifaceted, and loosely organized cluster of concepts that have originated in ecology and system theory but have more recently been taken up in economics, political science and management theories (cf. Ge et al., 2016). Resilience theory is rooted in a practical interest in preventing the collapse of valued systems (Carpenter & Brock, 2008). In the context of farming systems, collapse refers to situations in which these systems can no longer deliver private and public goods, such as the production of food, fibre and energy; jobs and income; and ecosystem services such as clean water, climate and flood regulation, biodiversity or attractive landscapes.

Resilience has generally been defined as the ability of complex social-ecological systems to cope with changing environments (Folke et al., 2010; Bullock et al., 2017). Following Anderies et al. (2013), the SURE-Farm conceptual framework distinguishes between three types of resilience against external perturbations: *robustness*, *adaptability* and *transformability* (Meuwissen et al., 2018). Robustness is the capacity of a system to resist external perturbations and to maintain previous levels of functionality without major changes to its internal elements and processes (Urruty et al., 2016). Adaptability is the capacity of a system to adjust internal elements and processes in response to changing external circumstances and thereby to continue its development along the previous trajectory while maintaining all important functionalities (Folke et al., 2010). Transformability is the capacity of a system to develop or incorporate new elements and processes to a degree that changes its operational logic in order to maintain important functionalities when structural changes in the ecological, economic, or social environment make the existing system untenable or dysfunctional (Walker et al., 2004).



As a strategy to defend system functionality, resilience is different from insulation. Systems that are neither robust nor able to adapt or transform must be isolated from external shocks and perturbations to prevent potential collapse. In the long run, however, insulation strategies are likely to further reduce resilience due to the suppression of co-evolutionary processes of a system's adaptation to changing environments.

The stability of European farming systems has long been supported by a complex and multi-layered configuration of policies. These include the EU's Common Agricultural Policy (CAP) and national and subnational support systems for farms and farmers (for example, various forms of state aid, state support to social security, public investments in infrastructure and land amelioration, or sector-specific regulations).

In the past, farm policies often aimed to insulate the sector from external shocks, in particular from price fluctuations, through a system of managed markets with guaranteed minimum prices, intervention buying and border protection. After the liberalisation of agricultural markets since the 1990s, resilience of farms and farm systems has become more of a concern in agricultural policy-making. These concerns have been aggravated by climate change, water scarcity, biodiversity loss and other ecological stressors.

This raises the question whether the current configuration of EU and national policies supports or constrains the capacity of regional farming systems to resist external perturbations or to adjust to changing economic, social, environmental and institutional demands and circumstances. The upcoming reforms for a post-2020 CAP can therefore also be understood as a decision whether and how much to invest in resilience-supporting policies and as a choice between the three resilience strategies – robustness, adaptive capacity and transformative capacity – or a mix of them. Understanding the CAP's effects on the resilience of regional farming systems requires an analysis of the interactions between the CAP and various other policies, which occur not only within the sector, but also across sectors and jurisdictional levels (Daugbjerg & Swinbank, 2012).

The academic literature on resilience has identified many characteristics of resilience-enhancing policies, such as room for flexibility and built-in policy adjustments, promotion of variation and multi-stakeholder deliberation, encouragement of learning and experimentation, a good balance between robustness and change, and accommodation of self-organisation and decentralised decision making (Folke et al., 2010; Olsson et al., 2007; Pahl-Wostl, 2009; Gupta et al., 2010; Van den Brink et al., 2013). Carpenter et al. (2015) suggest nine system properties that should be optimized by policies: diversity, modularity, openness, reserves, feedbacks, nestedness, monitoring, leadership, and trust. A separate discussion regards the factors that determine the resilience of a policy or institution itself (Daedlow et al., 2013). Numerous lists of characteristics

that could enhance the resilience of systems have been proposed. However, these key characteristics have not been fine-tuned to farming systems and they do not explicitly distinguish between robustness, adaptability and transformability.

Work package 4 of the SURE-Farm Project addresses the following question: *To what extent do current policies at the EU and member state level, and in particular the CAP, enable or constrain the resilience of European farming systems along the dimensions of robustness, adaptability and transformability?* To answer this question, this paper introduces a tool to assess policies in terms of their ability to support the resilience of farming systems and thereby to identify policy strengths and weaknesses, and to provide entry points for policy improvements. We refer to this tool as the Resilience Assessment Tool (ResAT). Importantly, the aim of the tool is not to assess the resilience of policies themselves, but the extent to which these policies influence the resilience of European farming systems.

## 2 Resilience enhancing policies

Public policy can be studied at different levels and dimensions (Knill & Tosun, 2014). Our primary focus in this phase of the project will be on policy outputs. Policy outputs are the direct result of decision making processes and generally take the form of a certain programme, law or regulation (Knill & Tosun, 2014). They differ from policy outcomes, which are the effects generated by the policy outputs. The key building blocks of policy outputs are policy goals and policy instruments. Goals are the (stated) ends that a policy seeks to achieve. These can be very broad and generic, or very concrete and specific. Instruments are often understood as the means by which ends are pursued. Instruments do not only include rules, prohibitions, subsidies, and fines, but also networks, trainings or partnerships. Importantly, means-ends relations in public policy are often ambiguous and contested, and through their social form (e.g. bureaucracy and control vs. free information) policy instruments carry their own normativity independently of the goals they are meant to achieve (Lascoumes & Le Gales, 2007). This is a main reason why there are various typologies in the public policy literature to cluster and classify these instruments.

We aim to analyse the extent to which policies affect the different types of resilience of farming systems: robustness, adaptability and transformability. Whereas some policies may encourage resilience, others will form obstacles (Feindt, 2012; Mandryk et al., 2012). However, there are some key points to keep in mind. First, if a policy is shown to enable a specific dimension of resilience (e.g. adaptability), it can simultaneously have a negative effect on other types (Martin et al., 2016). For example, while governmental compensation of losses or subsidies related to existing production methods may increase robustness, it may also weaken adaptability and transformability because the recipients learn to rely on subsidised compensation and state

support. These may therefore incentivise the status quo and reduce farmers' motivation to seek new ways to diversify (Ashkenazy et al., 2017). Such trade-offs are also linked to short-, middle- and long-term policy time frames (Adger et al., 2010; Béné et al., 2012). While support to increase robustness might show effects on the short term, adaptation and transformation require longer time scales to avoid system disruption. Scholars have therefore argued that policy makers face a choice between committing their limited resources to middle-range adaptability, long-term transformability or short-term robustness (Heltberg et al., 2009; Martin et al., 2016). However, it always requires the right balance. Devoting too much attention and resources to robustness may reduce possibilities for adaptation and change, while exclusive attention to long-term transformation may neglect functionalities of already well-performing systems.

Second, trade-offs may emerge between resilience and other important dimensions of public administration, such as effectiveness, efficiency and legitimacy (Hood, 1991; Duit, 2016). Scholars have emphasized that policies must always balance flexibility and adaptability on the one hand and stability, predictability, and efficiency on the other (Wildawsky, 1988; Weick & Sutcliffe, 2001).

Third, resilience is also a politically sensitive issue (De Bruin et al., 2015). A longstanding critique holds that the ecology-based resilience conceptual frameworks are largely naive towards political realities of governance, and do not or insufficiently account for it (Duit, 2016; Swannstorm, 2008). Because resilience is often framed as a zero-sum game, losers will mobilize their blocking power to avoid resilience enhancing policies. In a zero sum case, flood protection policy options where framed as a choice between or resilient room for the river projects or inflexible dikes (De Bruin et al., 2015). Potential losers have strong incentives to ensure that knowledge and information is contested, which can have the effect of undermining the basis for resilience; legitimizing their resistance. In a sense, status-quo oriented groups can be seen as favouring one type of resilience, i.e. robustness, over adaptability or transformability (De Bruin et al., 2015).

Fourth, even if a policy appears to enable resilience, this does not automatically mean that farming systems will use their improved capacity. During the second phase of our research project we will conduct a bottom-up analysis in which we study the interactions between policies and stakeholder behaviours. In this second phase of the project, we will look at the policy outcomes in the web of multi-level and multi-sectoral policies as experienced by actors within farming systems. Policy outcomes are the policy *as implemented*, i.e. the effects that a policy has on the behaviour of targeted actors (Knill & Tosun, 2014). These effects may be different from what was intended or stated in the policy outputs.





### 3 The policy resilience assessment tool (ResAT)

#### 3.1 Aim of the tool

Previous research has focused on the strategies of farmers to anticipate shocks or uncertainties or to respond to them, for example through crop rotation, diversification of business models, or relocation. These strategies are embedded in regional farming systems that provide opportunity structures and resources, such as networks, insurance systems or knowledge. While the Resilience Assessment Tool (ResAT) does not directly focus on farmers' strategies or on farming systems, it assesses whether policy goals and instruments encourage, enable, tolerate or constrain farmers' resilience enhancing strategies and resources. In the first step of our work package, the ResAT will be used to analyse and evaluate whether and how the CAP, its implementation in the eleven member states of our case studies, and additional relevant national policies address and support the resilience of farming systems.

#### 3.2 Modification of the adaptive capacity wheel

The ResAT is based on the adaptive capacity wheel (see figure 1, p. 8), a heuristic that has been developed to assess the capability of governance institutions and policies to enable society to adapt to climate change (Gupta et al., 2010; 2016). This wheel has been implemented by scholars and policy organisations around the world to assess, for example, local policies (see figure 1 with examples of two Dutch municipalities), European directives or national climate adaptation programs (Grothmann et al., 2013; León-Camacho et al., 2014). Its traffic light system, with red indicating that a particular dimension of resilience is not sufficiently addressed, has been found very useful in communication with governance actors.

We have modified the adaptive capacity wheel with regard to three aspects: 1) we have included new insights from the literature published since the adaptive capacity wheel was first developed in 2010; 2) we have differentiated the tool to address the three resilience dimensions of robustness, adaptability and transformability, while the adaptive capacity wheel mainly focusses on adaptability; 3) we have adjusted the tool to the specific resilience challenges to European farming systems so as to analyse the extent to which policies enable or hinder their resilience.

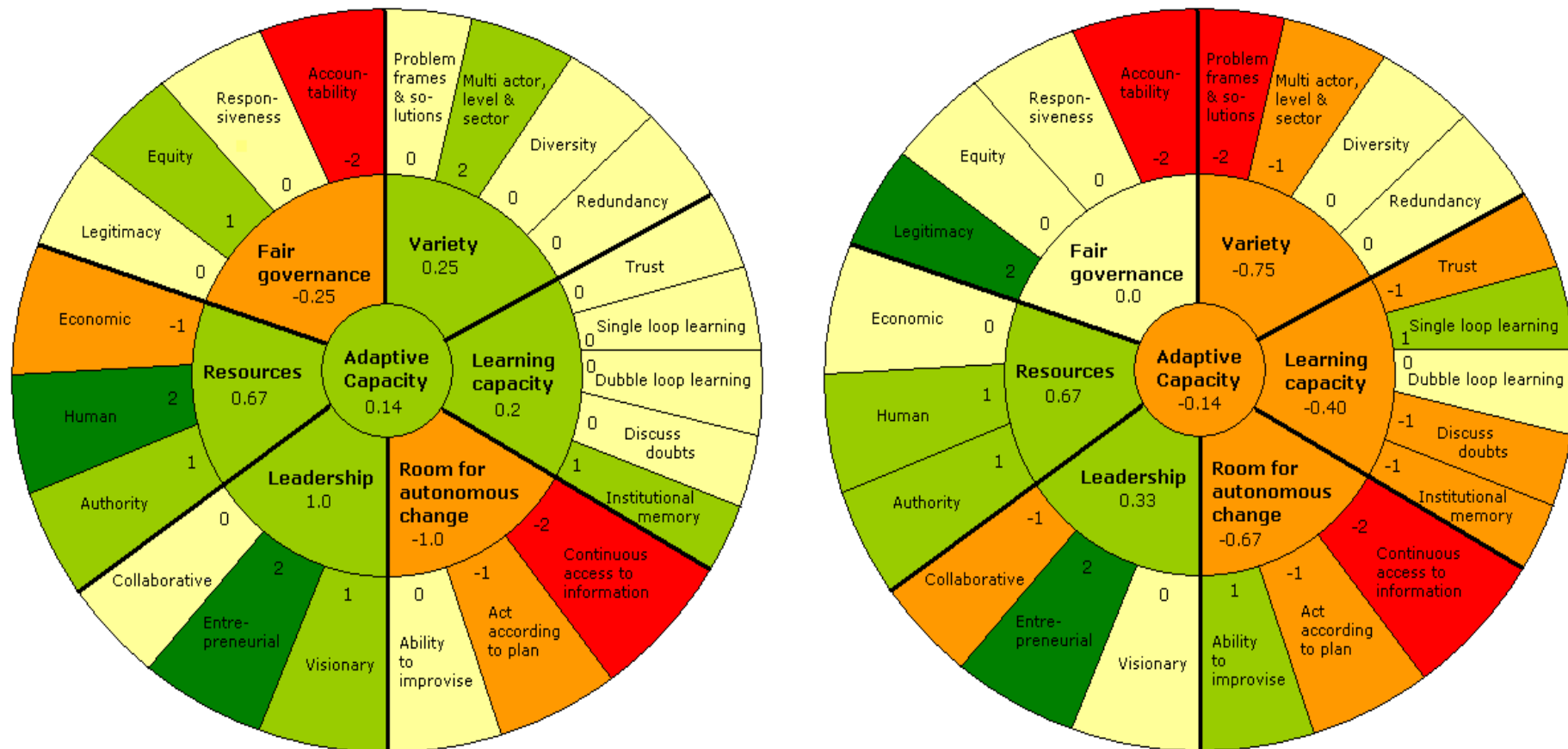


Figure 1: Application of the Adaptive Capacity wheel to Delft (left) and Zaandam (right) (Gupta et al., 2010)



In order to specify the tool along the dimension of robustness, adaptability and transformability, we have first elaborated the three types of resilience as defined by Meuwissen et al. (2018) more precisely and identified associated strands of literature (see table 1).

**Table 1:** *Three types of resilience and their roots in literature*

Type of resilience	Definition	Roots in literature
<b>Robustness</b>	<p>Policies (or elements of it) that enhance marginal adjustments in response to specified perturbations and disturbances. The aim is to maintain the same functions and desired levels of outputs despite the occurrence of perturbations.</p> <p>The focus is on short-term recovery. Also referred to as precursor and recovery resilience.</p>	<p>Resilience literature in general, in particular literature on risk management.</p> <p>(Anderies et al., 2013; Urruty et al., 2016; Ashkenazy et al., 2017 Folke et al., 2010; Chaffin et al., 2014; Boin &amp; van Eeten, 2013).</p>
<b>Adaptability</b>	<p>Policies (or elements of it) that enhance the ability to adapt processes, structures and systems to constantly changing external drivers. These policies aim to increase the capacity to better monitor and cope with emerging uncertainties, so the system becomes stronger from disturbances. The focus is on middle-long term.</p>	<p>Resilience literature in general, in particular literature on adaptive management and adaptive governance</p> <p>(Karpouzoglou et al., 2016; Olsson et al 2006; Gupta et al., 2010; Pahl-Wostl, 2009; Boin &amp; Van Eeten, 2013).</p>

<b>Transformability</b>	<p>Policies (or elements of it) that enhance the ability to develop fundamentally new values, rules and identities in response to uncertainties and disturbances that render the existing system untenable or dysfunctional. These policies aim at developing radical new systems while dismantling elements of the existing system. The focus is on the long term.</p>	<p>Resilience literature in general, in particular literature on transformative change and transition management.</p> <p>(Bristow &amp; Healy, 2017; Brown et al., 2015; Galaz &amp; Boonstra, 2014; Chaffin et al., 2016; Adger &amp; Hobdod, 2014; Kivimaa &amp; Kern 2016; Moore et al., 2014, Ostrom (2005); Rijke et al., 2013; Termeer et al., 2017; Geels, 2014).</p>
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### 3.4 Key characteristics of resilience-enhancing policies

Based on the literature mentioned in Table 1, we have identified four key resilience-enhancing policy characteristics for each of the three types of resilience. Table 2 (see pages 15-16) presents these characteristics and shows anchor examples that are related to policy goals and policy instruments. These anchor examples help determining whether a resilience dimension is constrained or enabled by the policy's goals and instruments. Importantly, the table includes anchor examples of policy elements that *enable* resilience characteristics. For some characteristics we have also added a limited number of constraints or barriers in the text below. This number is limited, because we approach constraining elements as the absence of enabling ones and/or conditions that obstruct the latter instead of proposing another set of anchor examples (Candel et al., 2016). Although below we refer to 'policies', the analysis will be conducted at the level of policy elements (goals and instruments).

#### 3.4.1 Robustness enhancing policies

Robustness is the first type of resilience. It is the most conservative one and refers to the ability to maintain the same functions and desired levels of outputs without major changes to the system despite perturbations (Anderies et al., 2013; Urruty et al., 2016), to recover from shocks or to resist undesirable change (Chaffin et al., 2014). In public administration theory, Boin & Van Eeten (2013) referred to this type of resilience as precursor and recovery resilience, defined as the ability to accommodate shocks without catastrophic failure and recover quickly when shocks have occurred. It is important not to confuse this with insulation policies, which aim to shield a system from external perturbation and thereby to avoid or reduce the need for robustness, adaptation

or transformation. On the basis of the literature on robustness and risk management, we identified four interrelated characteristics of robustness-enhancing policies.

1. Short-term focus

These policies focus on short-term recovery and continuation of the status quo with marginal adjustments. This means that the focus is on months to a year. Ad hoc policies or instruments that shift the burden to other time scales is tolerated or even encouraged.

2. Protecting the status quo

These policies prioritize quick and familiar adjustments to existing practices so as to sustain the functioning of existing socio-ecological systems under changing conditions (Park et al., 2012; Wise et al., 2014). They encourage the preservation of current system characteristics despite an uncertain or fundamentally changing environment (Anderies et al., 2013).

3. Buffer resources

These policies provide buffer capacity for preserving what we have and recovering to where we were (Folke et al., 2010). These buffer resources can, for example (depending on the specific resilience challenges), involve public compensation funds, mobilization of additional labour force, water reservoirs or food aid. Redundancy is a specific form of buffer. It means that when the primary system breaks down, it must be possible to switch to backup systems. These backup systems provide the same functionality to sustain the system exactly as it was before the interruption (Anderies et al., 2013; Weick & Sutcliffe 2001). Policies organise or enable the availability and accessibility of buffer resources, in order to reduce the sensitivity of a system's output, e.g. a farming system's food production, to perturbations (Anderies et al., 2013).

4. Other modes of risk management

Other risk management measures are installed or encouraged in order to help the system to bounce back to an acceptable state quickly after a shock and thus prevent further crisis escalation (Boin & Van Eeten, 2013). This calls for policies and instruments that include responses to risks, including monitoring and evaluation of risks and responses (Hood & Jones, 1996). It also comprises policies that enable social actors to anticipate disturbances and to take preventive measures against important threats, by providing them with the necessary means and information, ongoing monitoring and feedback networks (Anderies & Janssen, 2013; Polsky et al., 2007).

### 3.4.2 Adaptability enhancing policies

Adaptability is the second type of resilience. It focusses on increasing the capacity to identify and adapt to constantly changing conditions (Karpouzoglou et al., 2016; Hurlbert & Diaz, 2013). Whereas the focus of robustness is on maintaining or returning to a prior mode of operation, adaptability refers to the capacity to learn and emerge even stronger from disturbances (Boin & Van Eeten, 2013). It refers to the extent to which systems are able to learn from experience and implement changes to avoid or withstand future disturbances (Duit, 2016). As such, adaptability involves the adjustment of processes, structures and systems to changing circumstances and thereby allows for new developments without disrupting developmental trajectories (Folke et al., 2010). For this type of resilience, the literature on adaptive management and governance provides clues for adaptability-enhancing policies, in particular the overviews of criteria for adaptive governance (Priest et al., 2016; Folke et al., 2010; Olsson et al., 2006). The adaptive capacity wheel also mainly refers to indicators that are important to adaptability, in particular those referring to variety, learning and room for autonomous change.

#### 1. Middle- to long-term focus

These policies focus on the middle- to long-term, that is 1 to 5 years. This time horizon does not imply that these policies postpone or delay measures. They enable and encourage swift action but the aim of adjusting existing structures, policies and cultures requires time.

#### 2. Flexibility

Policies allow and encourage actors to respond in flexible ways to increased uncertainty and changing circumstances, e.g. shifting ecological baseline conditions (Anderies & Janssen, 2013). They must not be impeded by, for example, overly strict and means-oriented regulations. This also requires flexibility of the policy arrangement itself (Karpouzoglou et al., 2016). Flexibility is for example often reduced by binding formal agreements that prescribe specific courses of action and are difficult to reverse (Rijke et al., 2013; Brown, 2008).

#### 3. Variety and tailor-made responses

Policies allow for variety between and inside targeted (farming) systems (diversification and multiple ecosystem services), to enable actors to recognise the variety in ecological change (e.g. Conant & Ashby, 1970). Broad stakeholder involvement, incorporation of multiple sectors and connections across jurisdictional level likely increase variety (Verweij & Thompson, 2006; Pahl-Wostl et al., 2007; Duit, 2016). Furthermore, adaptability requires room for tailor-made solutions, because policies that are appropriate for one context may not work or reveal new vulnerabilities

in other contexts (Anderies & Janssen, 2013). Obstacles for tailor-made responses are often aggravated by silo mentality between policy domains and levels (Rijke et al., 2013; Brown, 2008).

#### 4. Social learning

Social learning is an essential feature of adaptive governance (Pahl-Wostl et al., 2007; Karpouzoglou et al., 2016). It pertains to the adjustment of practices so that they are better suited to cope with disturbances and uncertainty, without radically altering underlying paradigms. Learning includes improvisation, trial and error, reflection and the exploration of new ideas (Rijke et al., 2012; Gunderson, 1999; Olsson et al., 2006; Van Herk et al., 2011). It is preferably a social process in which actors develop, exchange and preserve knowledge in networks. This calls for policies that encourage learning across institutional boundaries and remove mechanisms that inhibit social learning (e.g. Dewulf et al., 2005; Pelling & High, 2005; Pahl-Wostl et al., 2007).

##### 3.4.3 Transformability enhancing policies

Transformability is the ability of a system to incorporate or develop new elements and processes to a degree that its operational logic is changed; typically when ecological, economic, or social pressures threaten to make it untenable or dysfunctional (Walker et al., 2004). Transformability includes the dismantling of elements of the existing system and the development of radically new values, rules and identities (Geels, 2014). For this type of resilience, the emerging literature on transformational change provides many cues. An often used definition of transformative change is *“a fundamental qualitative change (...) that often involves a change in paradigm and may include shifts in perception and meaning, changes in underlying norms and values, reconfiguration of social networks and patterns of interaction, changes in power structures, and the introduction of new institutional arrangements and regulatory frameworks.”* (IPCC 2012, p. 436) Kates et al. (2012, p. 1) distinguish three classes of adaptations that they describe as transformational: *“those that are adopted at a much larger scale or intensity, those that are truly new to a particular region or resource system, and those that transform places and shift locations.”* We have identified four key characteristics of policies that enhance transformative change

#### 1. Long-term focus

These policies aim for transformative change and inherently address a time span of decades. However, this does not mean that policymakers can lean back. Serious transformative change starts immediately through small but in-depth changes (Termeer et al., 2017). Furthermore, a deliberate focus on the long term not always implicates transformability, because it may also focus on ensuring continuity and keeping the status quo. In other words, a long-term focus is



essential for transformability but referring to the long-term does not automatically mean transformability.

## 2. Dismantling incentives that support the status quo

System transformations require intentional policy interventions which address path dependency, power struggles and vested interests and prevent or weaken the “reproduction of core regime elements” (Geels, 2011; Turnheim & Geels, 2012). These interventions require recognising or creating windows of opportunity to disrupt existing patterns of behaviour (Rijke et al., 2013). Policy instruments are designed to incentivise transformative practices of target groups; instruments that support the status quo are dismantled.

## 3. In-depth learning

These policies enable and reflect higher order reflexivity or in-depth learning with actors challenging dominant mind-sets and fundamentally adjust them to changing environmental conditions and disturbances (Brunner et al., 2005; Folke et al., 2005; Huntjens et al., 2012; Pahl-Wostl, 2006; Argyris & Schon, 1978). The concept of third order learning refers to the capacity of people to reflect on the schemata underlying a system of which they are part (Bartunek & Moch, 1987). In-depth learning can be supported by policies that encourage the ‘unlearning’ of past insights, routines, fears and reflexes. Policies that aim to shield participants from experiencing embarrassment and that privilege entrenched viewpoints inhibit in-depth learning and aggravate defensive routines (Argyris, 1990).

## 4. Enhancing and accelerating niche innovations

Transition and transformation theories emphasize the importance of policies that enhance and accelerate niche innovations, experimentation, self-organisation and early wins (Geels et al, 2014; Termeer et al., 2017). Niche innovations require, for example, local, regional and national governments that enable self-governance of collectives that create their own rules (within the limits of legislative boundaries) (Ostrom, 2005) and tolerate the emergence of “shadow networks” outside direct government control (Olsson et al., 2006). Policies may also play an important role in connecting actors, encouraging them to experiment and facilitate access to resources and support (Gunderson, 1999; Olsson et al., 2006, Rijke et al., 2013).



Table 2: Key characteristics and anchor examples

Type of resilience	Key characteristics	Anchor examples of how this characteristic may be enabled by policy goals	Anchor examples of how this characteristic may be enabled by policy instruments
<b>Robustness</b>	1. Short term focus	No long-term visions; months to years discourse	Payment and programming cycles of one year or less
	2. Protecting the status quo	Prioritization of existing farming and production systems; agricultural exceptionalism discourses; focus on agricultural interests	Subsidies for existing production systems
	3. Buffer resources	Importance of buffer resources such as finances, fresh water, labour, seeds etc.	State aid regulations that discourage innovation; financial compensation (emergency schemes)
	4. Other modes of risk management	Focus on short-term fluctuations rather than systemic risks	Accessibility of data to individuals; state-funded or subsidized private risk management; procedures to trigger market crisis intervention
<b>Adaptability</b>	1. Middle-long term	1-5 years discourse	Programming cycles of 1–5 years
	2. Flexibility	Emphasis on flexibility; discourse focuses on desired outcomes rather than means	Global directives; dynamic regulatory norms; monitoring focuses on goals instead of means

	3. Variety and tailor-made responses	Multiple problem definitions; importance of diversity between and within farming systems is acknowledged.	Availability of a wide range of different policy instruments to tackle a problem; room for decentralised decisions; local autonomy
	4. Social learning	Encouragement of learning; attention to the ideas of different actors and sectors	Communities of practice; broad networks; learning loops embedded in policy
<b>Transformability</b>	1. Long term	5 and more years discourse; long term future oriented frames	Long-term backward planning and strategies
	2. Dismantling incentives that support the status quo	Recognition of perverse incentives and unproductive path dependencies; aims to unblock lock ins	Abolishment of instruments that support developments which hinder transformations; significant reallocation of resources
	3. In-depth learning	Challenging dominant frames; paradigmatic change; radical new frames; broad involvement of stakeholders	Broad consultations; organised and consequential policy dialogues; learning communities
	4. Enhancing and accelerating niche innovations	Attention for niche innovations; support to accelerate innovation	Legal room for experiments; resources for experimenting; right to self-organize; subsidies for niche innovations

Figure 2: The Resilience Assessment Tool (ResAT)



## 4 A protocol for applying the ResAT

### 4.1 Introduction

There are some important considerations to be taken into account when applying the ResAT. First, the resilience types and associated characteristics are not independent from each other. Policy efforts to promote one or more of the three types of resilience can be complimentary and synergistic, but can also be mutually defeating, including the competition for attention and resources. This means that the overall resilience enhancing character of a policy cannot be calculated as a sum of the three separate types (Béné et al., 2012; Yan & Galloway, 2017), but must be presented as a resilience profile. Second, the types and characteristics are not independent of context. This means that the application of the wheel to a specific challenge, farming system or region determines which of these dimensions are more or less important. Third, policy goals and policy instruments may not be well aligned. It is for example possible that the policy goals emphasize the long term, whereas the instruments focus on the short term. This could be an important conclusion of the analysis, and must be registered. Fourth, the wheel cannot be ‘objectively’ applied; it will always be subject to expert judgement and sound interpretation (Gupta et al., 2009). For such a qualitative tool to have scientific relevance, it is imperative that this interpretation is transparent and systematic. Validity can be enhanced if different researchers assess the same set of policies. The researchers need to clearly understand and internalize the meaning of each characteristic and associated anchor examples. Where expert judgement is needed, it is important that there is a structured methodology for applying this wheel in the form of a good research protocol (Gupta et al., 2009).

This section explains the seven steps of the ResAT protocol: 1) identification of challenges; 2) collecting the data; 3) analysing the data; 4) interpreting the data; 5) overall analysis of strengths and weaknesses; 6) presenting the data; 7) stakeholder check. This protocol applies to task 4.2 (the assessment of the capacity of the CAP to enhance or constrain the resilience of farming systems), including eleven case study partners. Task 4.3 (bottom-up evaluation of policy effects in five cases), which also includes policy outcomes, will be elaborated at a later stage.

### 4.2 Step 1: Identification of main farming system specific challenges

As researchers you will analyse the degree to which the CAP and associated implementation schemes affect the resilience of the specific farming system in your country that constitutes your case study. Resilience is always considered in relation to a certain context or challenge. The first step is to write a short summary of the specific challenges that the farming system(s) face(s) in the regional context, and why (½ - 1 A4). Following on discussions during the consortium meeting in Madrid, we would like to ask you to not only focus on immediate challenges as experienced by

actors in the framing systems themselves, but also on relevant broader, long-term challenges. The variables of the scenarios developed in WP 1 can serve as point of departure for optimizing challenges that were identified in the case descriptions on the SURE-Farm intranet: [http://surefarmproject.eu/wordpress/wp-content/uploads/2018/02/SURE-Farm\\_Deliverable-1.2-Scenarios-for-EU-farming.pdf](http://surefarmproject.eu/wordpress/wp-content/uploads/2018/02/SURE-Farm_Deliverable-1.2-Scenarios-for-EU-farming.pdf) (Table 2). The ability of the CAP and national policies to enable or constrain resilience will be assessed against these challenges. Identification of the main challenges is necessary as it provides the researcher with a perspective from which he or she needs to analyse the policies during the next steps of the ResAT application.

### 4.3 Step 2: Data collection

In the second step, policy documents are collected for the assessment. The policy documents dataset that is to be used entails: (i) CAP policy documents, (ii) national CAP implementation plan(s); and (iii) other relevant national agricultural policy programs. For the CAP, we propose not to use the detailed regulations, but a selection of documents that give an overview of the main goals and instruments. These documents can be found on the SURE-Farm intranet (task 4.2); you should complement these with other relevant documents from your national context. An important consideration is that some documents will provide valuable information about instruments but not about goals, and vice versa. For the analysis of goals, we suggest using press releases, websites and political documents of the EU institutions and national governments (think in case of the latter also about letters that the Ministry of Agriculture sends to Parliament to explain the CAP and/or national implementation choices). Since it is not a quantitative analyses documents do not need to be weighted differently. For the second type of documents, you have to identify your government's implementation plan(s)/scheme(s). The following report provides a good overview of the main implementation choices of each national government: [https://ec.europa.eu/agriculture/external-studies/mapping-analysis-implementation-cap\\_en](https://ec.europa.eu/agriculture/external-studies/mapping-analysis-implementation-cap_en). Focus on existing policies, thus of policies that are already implemented.

Some national governments have, in addition to the CAP, an elaborate national agricultural policy or program (such as the French government's policy to stimulate an 'agro-ecological transition' or Germany's support to health insurance and retirement schemes for farmers). In this step of the work package we only focus on relevant policies issued by the national ministry of agriculture (or equivalent). Explore whether this applies to your country's government. If so, collect relevant documents. Again, the explanation of such policies on ministerial websites are often a suitable text for analysis. To make sure that case partners work on comparable datasets, we would like to ask you to send your dataset to the WP coordinator for feedback. The WP coordinator will advise you whether the dataset is complete for performing the analysis. For more information on the deadlines for sending data, see **Chapter 6: Agenda**.



For step 2, we advise you to collect between five and ten documents to analyse. You are however not limited to a maximum of ten documents if you conclude that additional relevant documents will enhance the quality of the analysis. A guiding principle is the concept of saturation: if the inclusion of new documents does not add significant novel information to your analysis, your sample is likely to be exhaustive.

The language of the documents may be both in English as well as in the local language(s) of the case study region. Preferably, you should provide a brief explanation in English of the content and purpose of non-English documents. However, keep in mind that your argumentation is always written in English.

#### 4.4 Step 3: Analysing the data

The third step consists of analysing the data collected to describe each characteristic of resilience. Table 2 presents an overview of these characteristics and suggests anchor examples for policy goals and policy instruments. On the basis of these anchor examples the relevant texts in the policy documents are identified. We want to emphasise that the primary focus in this phase of the project is on policy outputs. This means that the analysis is limited to the content of the written text in the policy documents, and does not include possible outcomes of the policies.

There are two ways of analysing the data, or the policy documents:

**Option 1:** *Manually, by using the provided tables* (as was practiced during the ResAT Training Session in Madrid).

**Option 2:** *Digitally, by using a qualitative data analysis software.*

It is up to the researcher to decide which analytical strategy he or she wants to use. The use of qualitative data analysis software (Option 2) is an alternative option to using the analytical strategy based on tables (or spreadsheets) (Option 1). Both analytical strategies will be explained in more detail below.

##### 4.4.1 Option 1: Manually, using the tables

After completing step 2 of the protocol, you have access to a set of policy documents. Prepare a new document in Microsoft Word (or other word processing program) and copy-paste Table 3 (see pages 22-23) in the document. This table will now serve as your data extraction table in which you will paste relevant text passages. This is also the table that needs to be registered in a formal background document. Regarding the amount of necessary tables, you are allowed to make use of multiple tables of the type of Table 3. For example, you can fill in a separate Table 3 for each of the policy documents you have found if this helps your personal thinking process or



organisation of information. For the final product that you deliver to the WP4 leader however you need to provide one aggregated and coherent table.

Importantly, the indicators in Table 2 are not exhaustive; they ‘merely’ serve as guiding concepts that can be the point of departure for a discussion of the extent to which a characteristic is enabled or constrained by the policies’ goals and instruments. Being enabled by a policy’s goals means that a specific characteristic is embedded/included/recognized in these goals; and vice versa, being constrained means that goals are absent or contradict a characteristic’s indicators. For instruments, the question is whether the mix of instruments is likely to enable or constrain the characteristic.

When you have prepared your Table 3 in a document in Word, it is time to carefully read the first policy document. If you find a text passage that corresponds to one of the key characteristics of table 3 i.e. to one of the types of resilience, copy-past this text passage into the corresponding cell of table 3. Importantly, a passage can provide insights into both enabling and constraining effects. Make sure that you add the reference of the text passage in the same cell as follows: (Author(s)/Institution, year, page number(s)).

Once you have read the entire document and copy-pasted the relevant text passages in your table, read the policy document again and review your results. It is common to these type of analyses that you discover text elements that also should be copied in the table and that you need to revise some of your earlier decisions. The relevant text can comprise one or more sentences, a sub-clause or an entire paragraph. Mark the shortest possible text unit that lets the reader clearly recognise which type and characteristic of resilience has been addressed.

#### Example

For example, a policy document contains the text passage: *“The CAP aims to encourage young farmers to get started with farming to ensure continuity from one generation to the next as the number of farmers is decreasing.”* This text is relevant as it mentions a long-term goal of the CAP. The next step is therefore to copy this text passage and past it in the corresponding cell, in this case Transformability – 1. Long-term – Relevant text for policy goal, and provide the text with a reference. Remind however that mentioning the long term, not automatically refers to transformability, because ensuring continuity may also entail keeping the status quo.

It is advisable that during this step two or three members of your team analyse the first document. The researchers should then discuss all differences in their decisions and come to a shared understanding. Ideally the coding should be done in parallel.

After analysing the first document, you can start analysing the second policy document and copy-past the relevant text passages in Table 3. Once more, you should go through the entire document at least twice, and it is advisable that several researchers analyse the text independently and then discuss their differences. After you have analysed your second policy document, review the results you got from the first document. This step is necessary to improve the consistency in your analysis as during the analyses you will develop a deeper understanding of policy documents and how this type of analysis is performed. Based on your experience with the first two documents, you can continue analysing the remaining documents. Ideally all documents should be coded by multiple researchers. We suggest to review your analysis of the previous documents after analysing five, ten and then all documents (if you have included more than ten documents).

*Table 3: Relevant texts from each policy document in country languages.*

Type of resilience	Key characteristics	Relevant texts for policy goals [add page number]	Relevant texts for policy instruments [add page number]
<b>Robustness</b>	1. Short term		
	2. Protecting the status quo		
	3. Buffer resources		
	4. Other risk management measures		
<b>Adaptability</b>	1. Middle-long term		
	2. Flexibility		
	3. Variety and tailor-made responses		
	4. Social learning		
<b>Transformability</b>	1. Long term		
	2. Dismantling incentives that		

	support the status quo		
	3. In-depth learning		
	4. Enhancing and accelerating niche innovations		

#### 4.4.2 Option 2: Qualitative data analysis software

##### Preparation

Select a qualitative data analysis software. Selection criteria might imply availability, cost and familiarity with the software. Usable software include NVivo, ATLAS.ti or MAXQDA. Please note that the technical terms used by the different software providers might differ in detail.

If you have not used qualitative data analysis software before, familiarise yourself with the basic functions, using the many available online tutorials, e.g. on YouTube. For the analysis here, you will only need to understand *how to create codes, how to code text, how to generate overview tables of your coding results, how to create a memo and how to create cross-tables ("node matrices")*. There is no need that you engage with the more advanced analysis functions of the software.

Before starting the software, make sure that you have completed step 1 and step 2 of the protocol.

##### Analysing the data

Upload the text corpus, i.e. the selected documents. Most software call the set of documents the "hermeneutic unit". Make sure that you give each document a recognisable name, since this will later help you to easily identify the source of important quotes.

Create the following list of 24 codes that contain the analytical dimensions and the type of policy output (policy goals or policy instruments). These codes will appear in a list of codes which is typically shown on the right hand side of the screen, next to the window that displays the texts under analysis. These codes correspond to the cells in the two right-hand columns of table 3 (see pages 22-23):

1. *Robust\_short term\_goals*
2. *Robust\_short term\_instruments*
3. *Robust\_protect\_status\_quo\_goals*
4. *Robust\_protect\_status\_quo\_instruments*
5. *Robust\_buffer\_resources\_goals*
6. *Robust\_buffer\_resources\_instruments*
7. *Robust\_other\_risk\_management\_goals*
8. *Robust\_other risk management\_instruments*
9. *Adapt\_middle-to-long-term\_goals*
10. *Adapt\_middle-to-long-term\_instruments*
11. *Adapt\_Flexibility\_goals*
12. *Adapt\_Flexibility\_instruments*
13. *Adapt\_variety\_tailored\_goals*
14. *Adapt\_variety\_tailored\_instruments*
15. *Adapt\_social\_learning\_goals*
16. *Adapt\_social\_learning\_instruments*
17. *Transform\_long-term\_goals*
18. *Transform\_long-term\_instruments*
19. *Transform\_dismantle\_status quo incentives\_goals*
20. *Transform\_dismantle\_status quo incentives\_instruments*
21. *Transform\_In-depth\_learning\_goals*
22. *Transform\_In-depth\_learning\_instruments*
23. *Transform\_niche\_innovations\_goals*
24. *Transform\_niche\_innovations\_instruments*

### Coding the documents

Open the first document in the hermeneutic unit and read the document carefully. If you find a text passage that corresponds to one of the codes above, i.e. to one of the types of resilience, mark this text passage (this looks like highlighting the text) and link it to the respective code (most software allow you to use drag and drop mode for coding). The marked text passages can comprise one or more sentences, a sub-clause or an entire paragraph. Mark the shortest possible text unit that lets the reader clearly recognise which type and characteristic of resilience has been addressed. It is important that you code text passages that provide insights into both enabling *and* constraining goals and instruments.

#### Example:

For example, assume that a document contains the statement: *“direct payments provide farmers an element of certainty in an uncertain world”*. This statement should be marked because it clearly corresponds to robustness. One could debate whether the key characteristic is “short term” or “protecting the status quo”. When you interpret the quote, try to keep your interpretation as close as possible to the words used in the document. In our example, the phrase *“certainty in an uncertain world”* resonates with “protecting the status quo” but does not explicitly mention any time horizon (which is more implicit), making “protecting the status quo” the interpretation closer to the text. Now you have to decide whether the quote refers to policy goals or policy instruments. In this example, direct payments are explicitly mentioned. Hence, the most suitable code would be *“Robust\_protect\_status\_quo\_instruments”*.

Once you have read and coded the entire document, read it again and review your coding results. It is very common that you discover more text elements that should be coded and that you revise some of your earlier coding decisions. For example, if the quote above was first coded as *“Robust\_protect\_status\_quo\_goals”*, a second reading would find that the quote explicitly mentions direct payments and should therefore be coded as *“Robust\_protect status quo\_instruments”*. The software makes it easy to remove the original coding choice and link the selected text (i.e. the quote) to the more appropriate code.

It is advisable that two or three members of your team code the first document. The coders should then discuss all differences in their coding decisions and come to a shared understanding. Ideally the coding should be done in parallel. Alternatively, the multiple coder can work sequentially. The second and third coder should then flag up all coding choices that they disagree with, using memos.

After you have finished coding the first document, you move on to the second document. Again, you should go through the entire document at least twice and again, it is advisable that several researchers code the text independently and then discuss their differences. After you have coded the second document, review the coding of the first document. This is to make sure that your

coding stays coherent. During the coding process, you will develop a deeper understanding of the coding system and the documents. To ensure consistency of the coding results, it is therefore necessary that you review your coding decisions. Based on your experience with the first two documents, you continue with the remaining documents. Ideally, all documents should be coded by two or three researchers. We suggest to review the coding of the earlier documents after the coding of five, ten and then all documents (if you have included more than ten documents).

#### Creating overview lists

Once you have coded all documents, reviewed your coding decisions and checked that several coders arrived at similar results, you create overview tables that show all quotes for each of the codes. This is a function provided by the software. It will also show the source (document and line) for each quote. Each of these lists is the equivalent to one of the cells in Table 3. For example, the list with all quotes for “Robust\_protect\_status\_quo\_instruments” will contain all quotes that you have coded as relating to this type and characteristic of resilience, corresponding to the third row from the topic in the far-right column 4 in table 3.

#### Memos

While coding the documents, it is likely that you have ideas that could be important for the overall understanding of the data or that could later help with your analysis and summary. Or you might want to explain your interpretation of a statement. For this purpose, the software allows you to create memos. This is very easy: You mark up the text that has triggered your idea or on which you want to add a comment. Then you click on the “memo” tab. A text window opens in which you can write your idea or comment. Memos can be an important basis for your overall analysis of the strengths and weaknesses or for writing the summary and conclusions of your analysis (step 5).



## 4.5 Step 4: Interpreting and scoring the data

### 4.5.1 Option 1: Manually, using the tables

You have now collected all the text passages and placed them in the right category. The fourth step is then to score the data. For this purpose, we use a 5-point Likert scale which also includes the option 'not clear'. Table 4 presents the Likert scale that will be used during the analysis. We have chosen for a 1 to 5 scale, instead of -2 and 2 to reduce normative bias. The idea of the Likert scale is that a numerical value (a score) can be ascribed to each type of resilience based on your collected text passages. You will now analyse your personal Table 3 with your collected text passages. Interpret the quotes, and ask yourself the question: *'To what extent the policy goal or instrument enables or constrains the key characteristic of the resilience type?'.* When you find your answer, fill in the corresponding code from Table 4 into Table 5: Likert scale policy documents. After assigning the score, it is now necessary to record your arguments why a particular characteristic has been scored in a particular way. Your arguments are written in English, also when the original policy document is in another language. Your argumentations are written in Table 5. Remember that argumentation is key in these types of analysis.

#### Example:

For example, you have collected several text passages about short-term policy instruments. Each of these text passages clearly states: *"Active farmers can each year apply and receive basic income support in form of direct payments."* You can then argue that the focus on the short-term is encouraged by the policy instrument, as the instrument of direct payments is presented in these quotes as a payment cycle of only one year. This means that you can write down the score of 5 in the corresponding cell in Table 5. After you have filled in the score, you can write down your argumentation why you gave this score in the same table.

To increase validity, it is necessary that several researchers independently score the text passages placed in table 3 (the background data), and then discuss any differences of opinion. Also take into account the sources of the documents, the presence of documents with contrasting indications and the number of documents that consider the same characteristics. This helps to increase transparency as well as robust results. All researchers should keep a record of the arguments why a particular characteristic has been scored in a particular way. Provide sufficient details about the held discussions and the arguments. Try to be as transparent as possible.

Table 4: Likert scale

<i>Question: To what extent do the policy's goals and instruments enable or constrain the characteristic?</i>	
<i>Answers</i>	<i>Scores</i>
<i>Not clear</i>	<i>0</i>
<i>obstructs</i>	<i>1</i>
<i>counteracts</i>	<i>2</i>
<i>neutral</i>	<i>3</i>
<i>enables</i>	<i>4</i>
<i>encourages</i>	<i>5</i>

Table 5: Likert scale policy documents with English argumentation

Question	Scale (0-5)	Arguments
<b>ROBUSTNESS</b>		
<b>1a.</b> To what extent is a focus on the short-term enabled or constrained by the policy goals?		
<b>1a.</b> To what extent is a focus on the short-term enabled or constrained by the policy instruments?		
<b>2a.</b> To what extent is protection of the status quo enabled or constrained by the policy goals?		
<b>2b.</b> To what extent is protection of the status quo enabled or constrained by the policy instruments?		
<b>3a.</b> To what extent is the development of buffer resources enabled or constrained by the policy goals?		
<b>3b.</b> To what extent is the development of buffer resources enabled or constrained by the policy instruments?		
<b>4a.</b> To what extent are other modes of managing risks enabled or constrained by the policy goals?		
<b>4b.</b> To what extent are other modes of managing risks enabled or constrained by the policy instruments?		

ADAPTABILITY		
1a. To what extent is a focus on the middle-long term enabled or constrained by the policy goals?		
1b. To what extent is a focus on the middle-long term enabled or constrained by the policy instruments?		
2a. To what extent is flexibility enabled or constrained by the policy goals?		
2b. To what extent is flexibility enabled or constrained by the policy instruments?		
3a. To what extent are variety and tailor-made responses enabled or constrained by the policy goals?		
3b. To what extent are variety and tailor-made responses enabled or constrained by the policy instruments?		
4a. To what extent is social learning enabled or constrained by the policy goals?		
4b. To what extent is social learning enabled or constrained by the policy instruments?		
TRANSFORMABILITY		
1a. To what extent is a focus on the long term enabled or constrained by the policy goals?		
1b. To what extent is a focus on the long term enabled or constrained by the policy instruments?		
2a. To what extent is the dismantling of incentives that support the status quo enabled or constrained by the policy goals?		
2b. To what extent is the dismantling of incentives that support the status quo enabled or constrained by the policy instruments?		
3a. To what extent is in-depth learning enabled or constrained by the policy goals?		
3b. To what extent is in-depth learning enabled or constrained by the policy instruments?		

4a. To what extent is the enhancement and acceleration of niche innovations enabled or constrained by the policy goals?		
4a. To what extent is the enhancement and acceleration of niche innovations enabled or constrained by the policy instruments?		

#### 4.5.2 Option 2: Qualitative data analysis software

This part will provide guidance for interpreting and scoring the data when you are using a qualitative data analysis software. It is this part of the analysis that focuses on the quotes that you have selected and coded during step 3.

Firstly, you create a second set of 18 codes that combine the types of resilience and the scores on the Likert scale. These codes will be added to the list of codes shown on the right margin of the screen. These codes correspond to the second column of Table 4. The codes that you create are:

- |                        |                         |                               |
|------------------------|-------------------------|-------------------------------|
| 1. <i>Robustness_0</i> | 7. <i>Adaptivity_0</i>  | 13. <i>Transformability_0</i> |
| 2. <i>Robustness_1</i> | 8. <i>Adaptivity_1</i>  | 14. <i>Transformability_1</i> |
| 3. <i>Robustness_2</i> | 9. <i>Adaptivity_2</i>  | 15. <i>Transformability_2</i> |
| 4. <i>Robustness_3</i> | 10. <i>Adaptivity_3</i> | 16. <i>Transformability_3</i> |
| 5. <i>Robustness_4</i> | 11. <i>Adaptivity_4</i> | 17. <i>Transformability_4</i> |
| 6. <i>Robustness_5</i> | 12. <i>Adaptivity_5</i> | 18. <i>Transformability_5</i> |

#### Coding the first document

Open the first document in the hermeneutic unit (i.e. in your text corpus). In this document, go to the first marked-up text (i.e. the first text that has been coded in the first round) and look whether it has been coded under robustness, adaptability or transformability.

Now consider whether the goal or policy instrument mentioned in the marked-up text enables or constrains the respective type of resilience. Decide how you score the marked-up text on the Likert scale and code accordingly.

#### Example

For example, assume that the marked up text is: “direct payments provide farmers an element of certainty in an uncertain world” and that this statement has been coded as “Robust\_protect\_status\_quo\_instruments”. You now have to decide which value on the Likert scale best characterises how the instrument of direct payments affects robustness. If you for example think that direct payments “enable” robustness, then code “robustness\_04”.

Once you have read and coded the entire document, read and review it again and, where necessary, adapt your coding choices. It is desirable that two or three members of your team code the first document. The coders should discuss all differences in their coding decisions and come to a shared understanding. Whether you finally agree or not, the arguments for your assessment should be noted in English. Again, ideally the coding should be done in parallel. Alternatively, the multiple coders can work sequentially. The second and third coder should then flag up all coding choices that they disagree with, using memos, and all differences should be discussed among the coders.

#### Coding & reviewing the documents

After you have finished the first document, you move on to coding the second document. Again, you should go through the entire document at least twice and again, it is desirable that two or three researchers assess the marked-up texts independently and then discuss their differences. After you have coded the second document, review the coding of the first document.

Based on your experience with the first two documents, you continue with the remaining documents. Ideally, all marked-up text should be assessed and coded by three researchers.

#### Iterative coding

To ensure consistency of the coding results, it is necessary that you review your coding decisions. We suggest to review the coding of the earlier documents after the coding of five, ten and then all documents (if you have included more than ten documents).

#### Memos

As in the first round of coding, we suggest to create memos to note ideas and comments that will later support your overall analysis of the strengths and weaknesses or for writing the summary and conclusions of your analysis.

### Optional: Creating overview lists

Once you have coded all documents, reviewed your coding decisions and checked that several coders arrived at similar results, you can create overview tables that show all quotes for each of the scaling codes. For example, the list with all quotes for “Robustness\_04” will contain all quotes that you have coded as enabling this type of resilience. These lists are *not necessary* but can be helpful in writing your conclusions. These overview lists are also a second-best alternative if you find it too difficult to work with node matrices.

### Create node matrices

Node matrices will help you to fill in *Table 5: Likert scale policy document* (see pages 28-30). Once you have finalised the coding, each marked-up text will be linked to *two codes*, one related to the type of resilience and policy outcome, the other linked to the assessment of the resilience effect (e.g. “enables robustness”). These codes function as “thematic nodes”.<sup>3</sup>

You can now create a matrix that is basically a cross-tabulation of the two types of codes. Each cell of this matrix will combine a code for the type of resilience and a code for the resilience effect score. Because of the coding strategy, codes that start with “robust\_” will be combined only with scoring codes that start with “robustness\_”, codes that start with “adapt\_” will be combined only with scoring codes that start with “adaptability\_”, and codes that start with “transform\_” will be combined only with scoring codes that start with “transformability\_”. We therefore suggest that you create three different node matrices:

1. *Robust\_\*\* X robustness\_\**
2. *Adapt\_\*\* X adaptability\_\**
3. *Transform\_\*\* X transformability\_\**

Each of these matrices will contain  $8 \times 6 = 48$  cells. The following table shows the structure of this matrix for the robustness-related codes. You might find it even more convenient to split each of these matrices into those relating to instruments or goals only, creating six matrices with  $4 \times 6 = 24$  cells each.

You have different options how the content of the node matrices is displayed. We suggest to use two options:

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<sup>3</sup> For example in the NVivo online manual at:

[http://helpnv11.qsrinternational.com/desktop/procedures/work\\_with\\_the\\_content\\_of\\_a\\_node\\_matrix.htm#MiniTOCBookMark5](http://helpnv11.qsrinternational.com/desktop/procedures/work_with_the_content_of_a_node_matrix.htm#MiniTOCBookMark5)



1. **Nodes Coded:** This shows the number of nodes coded. This display mode provides a quick overview of how many quotes you have coded in each cell. You can now, for example, compare how often statements on “Robust\_protect status quo\_goals” were coded on each score of the Likert scale.

#### Example

Assume that you have found altogether 16 quotes that you have coded as “Robust\_protect status quo\_goals”, of which three received a score of 5, eleven a score of 4 and two a score of 3. As a result, you will likely enter an overall score of 4 into *Table 5: Likert scale policy document*. The following table shows an example of the structure of nodes matrix for robustness.

Resilience type (here: robustness)	Resilience score (here: robustness)					
	0	1	2	3	4	5
Robust_short term_goals						
Robust_short term_instruments						
Robust_protect status quo_goals				2	11	3
Robust_protect status quo_instruments						
Robust_buffer resources_goals						
Robust_buffer resources instruments						
Robust_other risk management goals						
Robust_other risk management_instruments						

2. **Content view:** You can also display the content of each cell, i.e. all quotes that have been coded with the corresponding codes. In our example, this view will give you the eleven quotes that have been coded as “Robust\_protect status quo\_goals” and “Robustness\_04”. The content view will support you in filling in the “Arguments” column of *Table 5: Likert scale policy document*.

#### Fill in table 5

When you have finished creating the node matrices, you can continue by filling in *Table 5: Likert scale policy document*. Each of the different types of resilience needs to be provided with a score, and an argumentation (in English) why this score was given. Remember that argumentation is key in these types of analysis. After you have finished filling in Table 5 with all the necessary information, you can continue with the overall analysis of strengths and weaknesses (step 5 of

the protocol). The overview lists and the node matrices will provide a good basis for this synthesis. They will also make the analysis more transparent.

#### 4.6 Step 5: Overall analysis of strengths and weaknesses

The fifth step is to translate the information collected into a story that communicates the strengths and weaknesses of a specific policy in terms of the three dimensions of resilience. In this step, the scores are interpreted to give them meaning in their context. For example, what does a score of '1' on buffer resources mean for the policy ; how does this score fit with those for the other items measuring robustness; and what could be done to improve this dimension of resilience? Data interpretation also includes identifying overall patterns; explaining (inter)dependencies between characteristics and/or dimensions; and highlighting tensions between characteristics and/or dimensions (which characteristics conflict with each other in the policy and why)? Finally the researcher needs to draw conclusions about the implications of their interpretation for the ability of a policy to promote the resilience of the farming sector, and how this could be possibly improved.

#### 4.7 Step 6: Presenting and communicating the data

The sixth step in the process is to present and communicate the data. The most useful way to present the data is to use colours to communicate how well a characteristic or dimension scores. Table 6 shows which colour corresponds with which score. Using a traffic light system, where green symbolizes a high score and red a low score, is communicative. In order to colour the ResAT-wheel, you simply check the score you have given to the characteristic and use the correct colour for the corresponding section of the wheel. The coloured wheel should always be accompanied by an explanation – which provides meaning to the analysis. It is important that the conclusions should never be left to the reader's interpretation. The coloured wheel should be used to stimulate discussion with social actors about the institutional bottlenecks and support that they have to deal with. *We will provide you with a ready-to-use wheel and instruction how to colour it in due time.*

**Table 6:** The assigned colours per Likert score

Answers	Scores	Corresponding colour
Not clear	0	White
obstructs	1	Dark Red
counteracts	2	Dark Orange
neutral	3	Light Yellow
enables	4	Light Green
encourages	5	Dark Green

#### 4.8 Step 7: Stakeholder check







Finally, each partner will organize a focus group with 4-5 key stakeholders to validate and enrich the outcomes. It is also possible to conduct 4-5 interviews. Member checking is a method to increase trustworthiness of qualitative inquiry (Carlson, 2010). It is basically what the term implies – an opportunity for members (participants/stakeholders) to check (approve) particular aspects of the interpretation of the data they provided and/or are involved in. It is a way of finding out whether the data analysis is congruent with the stakeholders' experiences. It utilizes the lenses of participants and external stakeholders in addition to the lens of the researchers. Member checking is best done with interpreted data rather than the actual transcripts.

Steps in the focus group or interviews are:

- Explain the aim of the analysis
- Show the coloured ResAT-wheel
- Discuss each of the types of resilience (robustness, adaptability, transformability) and explain the arguments why you as researchers concluded that policies score a 1-5. Try not to use technical language: i.e. it is not advisable to ask: Is double loop learning a strong point in this policy. Accessible language is likely to evoke more productive responses, e.g.: how would you characterise the way learning is stimulated by this policy
- Ask the participants to reflect on this:
  - Do they agree with the arguments, have they additional/conflicting arguments?
  - Do they agree with the score/colour, would they go for a different score/colour?
- Discuss the overall conclusions and ideas for improvements in particular
- Finally it is Important to inform participants how their contributions will be used in the published version of the study.

## 5 Overview of the protocol

A short summary of the steps of the protocol for using the ResAT is given below:

- 
**Step 1:** Identification of main country/farming system specific challenges  
*Write a short recap ( ½-1 A4) of the specific challenges that the farming system(s) face(s) in the regional context and why, to identify specific challenges.*
- 
**Step 2:** Data collection  
*Collect policy documents - (i) CAP policy documents; (ii) national CAP implementation plan(s); (iii) possible national agricultural policy programs - for the assessment. Identify your government's implementation plan(s)/scheme(s). Send your dataset to the WP coordinator to make sure it is complete and comparable with other cases.*
- 
**Step 3:** Analysing the data  
*Analyse the collected data using indicators (Table 2) to describe each characteristic of resilience or use qualitative data analysis software. The indicators help to identify relevant texts in the policy documents. Put the text in a data extraction table (Table 3). Register the table in a formal background document. **Important:** the given anchors are not exhaustive, but are guiding concepts.*
- 
**Step 4:** Interpreting and scoring the data  
*Score the data by using a 5-point Likert scale (table 4). Different researchers independently score the background data (table 3) and discuss the differences of opinion. Keep a record of the arguments for the scores. Register the document analysis in a formal background document (table 5).*
- 
**Step 5:** Overall analysis of strengths and weaknesses  
*Interpret the given scores and translate this information into a story that gives them meaning in their context. Draw conclusions on what the interpretations imply about the resilience-enhancing ability of the policy, and how to improve it.*
- 
**Step 6:** Presenting and communicating the data  
*Use a traffic light system to indicate the scores per characteristic in the ResAT-wheel. **Important:** always provide an explanation for the colour choices in the ResAT-wheel.*
- 
**Step 7:** Stakeholder check  
*Organise a focus group or conduct a set of interviews with key stakeholders to validate and enrich the outcomes.*

## 6 Agenda

Date	Who	What	Purpose/Remarks
<b>15 May</b>	Case study partners	<p>Send your description of challenges, and list of documents for inclusion in the analysis. Pdf copies of these documents (original, no translation). Please provide a brief explanation in English when necessary.</p> <p>Send it to <a href="mailto:yannick.buitenhuis@wur.nl">yannick.buitenhuis@wur.nl</a></p>	Check suitability of the text corpus with the WP coordinators
<b>23 May</b> <b>10:00-11:00</b> <i>Dutch Summer time (UTC+2)</i>	All	Skype No. 1: Exchanging experiences and organise coherence	For the skype meetings: Please prepare questions and/or remarks and send these beforehand - at the latest two day before the meeting. The questions will be used to organise the meeting as efficient as possible.
<b>20 June</b> <b>10:00-11:00</b> <i>Dutch Summer time (UTC+2)</i>	All	<p>Skype No. 2: Exchanging experiences and organise coherence</p> <p>Assess at least 1 document in order to participate in the discussion.</p>	
<b>15 July</b>	Case study partners	Send concept assessments to <a href="mailto:yannick.buitenhuis@wur.nl">yannick.buitenhuis@wur.nl</a>	
<b>1 August</b>	Wageningen team	Partners receive feedback on concept assessments	
<b>15 September</b>	Case study partners	<p>Send finalised assessments in the right format to <a href="mailto:yannick.buitenhuis@wur.nl">yannick.buitenhuis@wur.nl</a></p> <p>Send also all your data - software (codes &amp; node matrices) or manual/tables - to include in the SURE-Farm project data base.</p>	



Sept/Oct	Wageningen team	Conduct overall analysis based on provided assessments	
17 October	Wageningen team & policy makers	Workshop Brussels with policy makers	
15 November	Wageningen team	Deliverable 4.2 Ready	





## 7 Format for the assessment

The following presents the format in which the finalised assessment needs to be send to the P1 – Wageningen University & Research Team.

### 1. Title page

- Country and case.
- Name researcher(s).
- Used method: manually / software (name of software)

### 2. Introduction

- Main farming system specific challenges (Max. 1 page).

### 3. Data

- List of selected policy documents – including references and sources (e.g. permalink).

### 4. Analysis

- Interpretation and scoring of the data (in English) (Table 5).
- Arguments regarding the scoring (in English) (Table 5).
- A coloured ResAT-wheel, and explanatory text regarding the wheel.

### 5. Stakeholder check

- Report of the stakeholder check (in English)

### 6. Overall analysis of strengths and weaknesses

- Concluding chapter of the document

### 7. Reference list

Annex:

#### i. Analysis of the policy documents

- One aggregated Table 3 filled in with your relevant text passages and references, or your coding set when using qualitative data analysis software (in English and/or country specific language).

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