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Target Populations, Sampling Frames and Sampling Designs of the ERiK-Surveys 2020

Forschungsverbund



Deutsches Jugendinstitut  
Technische Universität Dortmund



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The German Youth Institute (DJI) is one of the largest social science research institutes in Europe and plays a central role in current research into the life situations of children, young people and families. The DJI's empirical studies both aim to contribute to the state of the art of research in the field as well as provide key impulses for professional practice. In addition to its scientific focus, the DJI provides policy advice to the German national government, the German federal states and local authorities.

Founded in 1963, the institute is run by a non-profit association with members in politics, academia and organisations and associations active in child-, youth-, and family welfare. The DJI receives its funding from the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth, the German federal states, the Federal Ministry of Education and Research, the European Commission as well as foundations and other science funding institutions.

Currently, about 400 staff members work and conduct research at the two locations in Munich and Halle (Saale).

**Authors:**

Diana D. Schacht, Benjamin Gedon, Jakob J. Gilg,  
Christina Klug, Susanne Kuger

**Design and layout of inner section:**

Christiane Zay, Passau

**Interior typesetting:**

Marei Peischl, Hamburg

**Editing:**

Denise Dewey-Muno, Lorch am Rhein

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# 1. The German System of Early Childhood Education and Care

The quality of early childhood education and care (ECEC; in German: Frühkindliche Bildung, Betreuung und Erziehung (FBBE)) has moved to the fore of national and international political debates. International research findings show that children who attend high-quality ECEC enjoy long-lasting educational benefits, for example they tend to do better at school than those who do not attend ECEC (Ruhm/Waldfogel 2012) and benefit with regard to their cognitive and socio-emotional development (Siraj-Blatchford/Moriarty 2004). At the same time, ECEC is regarded as a key factor for creating equal educational and social opportunities (Vandenbroeck/Lazzari 2014) and for promoting female labor market participation, hence it has been directly linked to wider economic returns and social prosperity (Cunha/Heckman 2010; Cunha et al. 2006).

In most Western countries, the growing consideration of the value of ECEC has resulted in a shift towards policies of investing in ECEC (Häusermann 2018) and thereby a significantly increased availability of childcare (Bonoli/Reber 2010). Within the ongoing quantitative expansion of ECEC services, questions regarding the assurance and development of the structural as well as the pedagogical quality of those services are raised. In most Western countries, these questions are being addressed by national efforts to assess and develop the quality of ECEC, and in most countries surveys are conducted to that end.

In Germany, the few nationally representative studies reveal different findings regarding ECEC quality. While some studies indicate mediocre quality and stagnating development of the quality of ECEC services (e.g. the national study on education, care and upbringing in early childhood, NUBBEK (Tietze et al. 2013)), others show that it depends on the parents' socioeconomic circumstances like income, education and migration background whether young children attend some form of day-care or not (Bildungsberichter-

stattung 2020; Fuchs-Rechlin/Bergmann 2014).

This wide array of research findings may be due to the several challenges relating to the investigation of ECEC quality in Germany. Four closely related challenges are considered to be of particular relevance.

First, there is an ongoing debate about how to define quality in German ECEC (Mayer/Beckh 2018). Since the 1990s, various stakeholders in research and politics have created momentum for the definition and development of instruments to measure quality in the different ECEC settings. The diversity of pedagogical concepts of ECEC settings and providers resulted in a large variety of instruments and procedures for quality development and assurance – the so called “quality management systems”. The German national quality initiative in the system of day-care facilities for children (in German: Nationale Qualitätsinitiative im System der Tageseinrichtungen für Kinder) defined five quality criteria (national criteria catalogue) and compiled and tested evaluation procedures, which are widely used within Germany. In 2019, the German law on quality development in ECEC (in German: Gesetz zur Weiterentwicklung der Qualität und zur Verbesserung der Teilhabe in Tageseinrichtungen und in der Kindertagespflege, KiTa-Qualitäts- und -Teilhabeverbesserungsgesetz (KiQuTG) for short) came into force. It governs the quality goals in ECEC, such as the improvement of access, the child-staff ratio, the qualification of staff and the strengthening of leadership in ECEC (Schilling 2017). Within the KiQuTG, the monitoring of ECEC quality is related to and structured by ten pillars and one additional topic.

Second, the different ECEC policies across the 16 German federal states lead to substantial regional differences. For example, the participation rates of children in the former eastern and western parts of Germany vary drastically (Alt et al. n.d.). In 2017, 51 percent of the children

under three years within the former East German states participated in ECEC compared to 29 percent within the former West German states (Autorengruppe Bildungsberichterstattung 2018). In general, the government of the Federal Republic of Germany sets a statutory framework including binding objectives and principles on German ECEC (see Book VIII of the German Social Code, SGB VIII). For example, according to the German Child and Youth Welfare Services Act (in German: Kinder- und Jugendhilfegesetz), centre-based early childhood education and care as well as family day-care services have to:

- › support children in becoming independent and socially integrated personalities,
- › support and complement education and care in the family,
- › assist parents in better combining childcare and employment responsibilities (see § 22 section 2 SGB VIII).

Framed by the above legislation, the federal states (in German: Länder) legally regulate and specify the tasks and goals of ECEC, such as the child-staff ratio or room dimensions (for an overview of ECEC laws in the 16 federal states see the German education server, Eduserver). The planning and implementation of ECEC at the local level, including the funding of ECEC services, is managed by local youth welfare offices (in German: örtliche Jugendämter). Thus, beside the federal state level, public goods provision in ECEC varies substantially between municipalities. Therefore, it is not surprising that empirical findings from studies representative of one region or local setting vary substantially from results of studies describing the situation in another regional setting.

Third, in Germany, diverse ECEC settings and providers need to be accounted for. At the municipal level, the Child and Youth Welfare Services Act assigns the responsibility for public welfare provision to the youth welfare offices (in German: Jugendämter). The youth welfare offices (or youth offices for short) have supervisory responsibility for providers assigned within their administrative area (see § 69 SGB VIII). Service providers (in German: Träger), which can be divided into public (in German: öffentliche Träger) and private providers (in German: freie Träger) of child and

youth welfare services, run the majority of centre-based ECEC in Germany. In 2018, 84 percent of the children under three years attended ECEC within a day-care centre, while a further 16 percent attended family day-care (in German: Kindertagespflege), another type of institutionalised care setting in Germany (Statistisches Bundesamt 2018). Thus, in Germany, several stakeholders are important for the quality of ECEC. While previous studies considered the perspective of parents (Aust et al. 2019), of directors and pedagogical staff in day-care centres (Statistisches Bundesamt 2019b; Lange 2017), of providers of day-care (Schneider 2018), of youth welfare offices (BMFSFJ 2017), of family day-care workers (Davis et al. 2012) and in rare cases even of children (Vandenbroeck/Lazzari 2014), studies combining the perspectives of the aforementioned stakeholders are still rare and partly outdated (such as NUBBEK Döge 2014).

Fourth, only a few micro data sets covering the field of ECEC in Germany exist – and even fewer of these are nationally representative data sets (German Data Forum 2010). The existing data comprises information collected by official statistics such as the statistics on child and youth services (in German: Kinder- und Jugendhilfestatistik, KJH-Statistik for short; Statistisches Bundesamt (2019b)) and survey data. Since 2006, official statistics have been compiled on the number of children attending centre-based ECEC as well as attending family day-care services. The data also contains information on the staff and the type of provider. However, official reporting of these statistics differs by state and district. In addition, certain definitions used within the KJH statistics are criticised within the ECEC research field (Schilling 2002; Pothmann 2019; Schilling/Kolvenbach 2011; Forschungsverbund DJI/TU Dortmund 2019). Survey data, on the other hand, is mainly limited to cross-sectional, regional data sets representing one perspective in the multi-actor ECEC field, such as pedagogical staff in day-care centres. The shortage of multi-actor studies in Germany may partly be due to the lack of register data on the German ECEC system. No register exists for any of the aforementioned actor groups. Thus, there is a high demand for nationally representative data combining the perspectives of different actors within the ECEC field.

## 2. Objectives of the Study

This survey report summarises the main information on the data collection process within the German study on indicator-based monitoring of structural quality in the German early childhood education and care system (in German: Entwicklung von Rahmenbedingungen in der Kindertagesbetreuung – indikatorengestützte Qualitätsbeobachtung; ERiK for short). The project will run from June 2019 to December 2022 and is funded by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (in German: Bundesministerium für Familie, Senioren, Frauen und Jugend; BMFSFJ for short).

In the context of the recent expansion of childcare places in ECEC institutions for children, the project surveyed and compiled unique data sets on the structural quality in the German ECEC system. This was accomplished by carrying out surveys with different actors within the field, thereby gaining an exceptional understanding of the different perspectives within the field. This encompassed surveys of the following target groups:

1. youth welfare offices
2. family day-care workers
3. providers of childcare
4. directors and pedagogical staff in day-care institutions
5. parents of children in day-care
6. children in institutional day-care

The first waves of the first four surveys was conducted in summer and autumn 2020, with the second wave planned for winter 2021/22 and spring 2022. The parents survey, on the other hand, is conducted on a slightly different time scale, as it part of a long-running yearly study on child-

care by the German Youth Institute and funded by the BMFSFJ, called DJI-Kinderbetreuungsstudie, (KiBS for short)<sup>1</sup>. The study surveys parents of children under the age of 12, and a separate technical report describes it in more details than it is done here (Aust et al. 2019, for more details).The ERiK children survey is planned for spring/summer 2022.

All of the aforementioned survey data sets include various quality indicators, primarily indicators of structural and orientation quality in German ECEC. The data sets were collected in collaboration with the infas Institute for Applied Social Sciences and the SOKO Institut für Sozialforschung und Kommunikation. By combining the different data sets, ERiK allows researchers a unique multi-perspective view on structural quality in the German early childhood education and care system. The ERiK data is thus particularly suitable for comparative research, such as addressing whether the perspective of directors and pedagogical staff in day-care institutions varies. At the same time, the detailed regional data allows for comparisons between and among different institutional settings, such as whether we find more variation in the perspective of pedagogical persons within a municipality or between different municipalities within a federal state.

This technical report covers the target populations (Chapter 3) and sampling frames (Chapter 4) of the different surveys, as well as the respective sampling designs and procedures (Chapter 5). Furthermore, since the first wave of the parent survey has already been completed, the field work and response rate (Chapter 6) are included for the parent survey.

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<sup>1</sup> The study is the continuation of the KiföG project which ran from 2012 to 2016 and evaluated the Child Support Act.(in German: Kinderförderungsgesetz; KiföG for short)

## 3. Target Population

ERiK consists of seven different surveys, which target seven distinct populations accordingly. These target populations are youth offices, family day-care workers, providers of childcare, directors of day-care centres, pedagogical staff in these centres, parents and children. In the following, we define the different target populations in more detail.

### 3.1 Youth Offices

The survey of youth offices targeted youth welfare offices in Germany as defined in § 79 SGB VIII and focused on the role of youth offices in their planning and governing function. Questions on the role of youth offices as providers of childcare were moreover included in the survey of providers of childcare (see 3.3).

The survey targeted all youth offices that existed on 1 October 2019 (date of address research). The call for participation in the survey was addressed to the directors, who oversee and guide the work flow within the youth offices and their development (see § 70 section 2 SGB VIII). Whenever directors of youth offices themselves were not willing to participate in the survey, they were allowed to designate an employee to respond on their behalf as long as the designated person had all information required to do so. Additionally, directors were allowed to pass on the questionnaire or parts of it to employees within the youth office responsible for ECEC. Thus, the survey includes questions regarding the potential survey participation of multiple employees within one youth office, as this is likely to occur in the case of youth offices that have multiple departments with responsibilities for ECEC.

The survey covered different types of youth offices. This encompasses the following three types of local youth offices:

1. County youth offices (in German: Kreisjugendämter),
2. Youth offices of cities not associated with a county (in German: Jugendämter kreisfreier Städte/Stadtjugendämter),

3. Youth offices of cities/municipalities associated with a county (in German: kreisangehörige Jugendämter)

4. Youth offices of city districts (in German: Bezirksjugendämter) (e.g. Berlin, Hamburg).

In Germany, the responsibilities of local youth offices differ from those of the federal youth offices (in German: Landesjugendämter). The former are responsible for the assignment of services in accordance with SGB VIII, including vocational training (§ 74 section 6 SGB VIII) and granting operating permits for family day-care workers (§87a section 1 SGB VIII). Since federal youth offices are responsible for interregional tasks and the government of local youth offices and are less involved in the practical management and coordination of childcare, they were not targeted in the ERiK survey.

### 3.2 Family Day-Care Workers

The survey of family day-care workers targeted the providers and staff of family day-care facilities in Germany who hold a permit for family day-care granted by the responsible youth office and provide ECEC according to § 22 and § 23 SGB VIII. Youth offices grant temporary permits to family day-care workers who have their permanent dwelling within their local jurisdiction for up to five years (§ 43 section 3 SGB VIII) in case of compliance with the requirements regulated in § 43 section 2 SGB VIII, e.g. relevant professional training. Under the terms of § 43 section 1 SGB VIII, family day-care workers need a permit when

1. they do not supervise the child(ren) within the dwelling of their parents (legal guardians),
2. they supervise the child(ren) during the day for more than 15 hours per week,
3. they are on a salary for more than three months.

In 2019, the majority (around 68 percent) of family day-care workers supervised children within their own home, whereas only around 9 percent

worked within the household of the supervised child(ren) (Ullrich-Runge/Lipowski 2019).

A family day-care worker is allowed to provide care for up to five children (§ 43 section 3 SGB VII), while larger family day-care facilities (in German: Großtagespflegestelle or (Kinder-)Tagespflegemeinschaft) operated with an average child care capacity of about 9 children per facility in 2017 (Autorengruppe Bildungsberichterstattung 2018). Larger family day-care facilities comprise at least two family day-care workers who provide childcare for more than five children. Respective permits can be granted by the local youth office based on the specific regulations of the federal states. Specifically, only 11 federal states allow supervision within larger family day-care facilities, namely Baden-Württemberg, Bavaria, Berlin, Bremen, Hamburg, Hesse, Mecklenburg-Western Pomerania, Lower Saxony, North Rhine-Westphalia, Saarland und Saxony-Anhalt. The share of larger day-care facilities increased from 28 to 39 percent since 2014 (Bildungsberichterstattung 2020).

On a yearly basis, the official statistics on children and employees in publicly funded family day-care facilities (in German: Statistik der Kinder und tätigen Personen in öffentlich geförderter Kindertagespflege) (Statistisches Bundesamt 2016) and the statistics on employers in larger day-care facilities and the therein supervised children (in German: Statistik über Personen in Großtagespflegestellen und die dort betreuten Kinder) (Statistisches Bundesamt 2014) surveys all publicly funded family day-care workers and larger family day-care facilities in Germany as part of the KJH statistics, for example collecting information on the overall number of family day-care workers and their working conditions (Pothmann 2018). Public funding of family day-care workers and large family day-care facilities by the local youth welfare office is based on a financial funding and different services regulated in § 23 sections 1 and 4 SGB VIII. This includes the following services:

- › the allocation of children to family day-care workers,
- › counseling for family day-care workers and parents,
- › practical supervision of family day-care workers by the youth office,
- › the provision of workshops and qualification

courses for family day-care workers, and

- › additional services regulated by the respective federal state.

This excludes family day-care workers who are funded solely by religious establishments, welfare and youth organisations and/or privately. Privately means for example that parents and family day-care workers have a contract with each other without the involvement of the local youth welfare office. The KiBS report for 2015 revealed that around 10 percent of the children supervised by family day-care workers were privately funded. Thus, these ECEC cases might not be covered by the official statistics (Statistisches Bundesamt 2016, 2014).

### 3.3 Providers of Childcare

The survey of providers of childcare targets service providers holding a permit according to § 45 SGB VIII. They are legal entities providing publicly available day-care, meaning they operate service institutions for early childhood education and care.

They are financed either

- › by the German federal states and municipalities such as local youth offices (*public providers*),
- › by religious establishments, welfare and youth organisations (*private providers*), and/or
- › privately such as within parents' initiatives or associations (*private providers*) (Strehmel/Overmann 2018; Bieker 2011).

Private providers (in German: freie Träger) can become legally recognised providers of childcare ("anerkannter Träger der freien Jugendhilfe") if they fulfil a number of requirements, such as ongoing childcare activities for at least three years (see § 75 SGB VIII). This recognition brings certain privileges such as the possibility of long term funding, is however not a requirement for acting as a provider (§ 74 section 1 SGB VIII).

One of the most important political principles that underpinning the organisation, funding and regulation of early childhood education and care services in Germany is the principle of subsidiarity (in German: Subsidiaritätsprinzip). This determines the relationship between public and private providers, which are required to cooperate as partners (see § 4 section 1 SGB VIII). For

the most part, providers in Germany are publicly financed but privately managed (Dieckbreder/Koschmider/Sauer 2014). Other possible combinations are public funding and management as well as private funding and management (Oberhuemer/Schreyer/Neuman 2010). However, § 74 SGB VIII states that private providers are given priority over public providers when new services are established. Public providers (youth offices) only provide day-care centres if private providers do not cater to the existing demand (see § 4 SGB VIII). Thus, it is not surprising that the majority of early childhood education and care services in Germany are managed by private providers (ibid.).

Local youth offices have the overall responsibility for planning and governing the responsibilities for early childhood services and have to ensure that these services fulfil their tasks (see 3.1). At the same time, they are also responsible for providing sufficient places to fulfil legal entitlements, and therefore act as public providers.

Apart from the provision of childcare, providers hire and train their pedagogical staff, build new childcare centres and are responsible for quality management in the childcare centres (Kliche/Töppich/Koch-Gromus 2009).

### 3.4 Directors of Day-Care Centres

Directors of day-care centres act as a link between providers of childcare and pedagogical staff. They implement guidelines provided by the provider and manage the pedagogical staff. In addition, some work with children alongside the pedagogical staff.

ERiK defines directors as the person taking on more managerial responsibilities relative to other day-care centre staff. Following this definition, each day-care centre in Germany has a director.

Thus, ERiK differs from the KJH statistics in its definition of directors: while the KJH statistics compare the share of managerial vs. pedagogical tasks of one staff person, ERiK compares the share of managerial tasks among all staff. Within the KJH statistics (part III.1 (Statistisches Bundesamt 2013)), directors are defined as persons who spend either the most or second most of their working hours on managerial tasks. Therefore, the KJH statistics register around 10 percent of the day-

care institutions in Germany as having no director (Statistisches Bundesamt 2014).

ERiK, on the other hand, based on its broader definition, defines more persons as directors within the field of day-care centres and thus varies in its definition of the target population. Consequently, there is a director within each institution following the ERiK definition.

Only directors of day-care centres for children not yet attending school are included in the ERiK sample (in German: ohne Horte), as the objective of ERiK is to investigate the impact of the KiQuTG on the quality of ECEC and this primarily concerns children under six years.

### 3.5 Pedagogical Staff at Day-Care Centres

ERiK defines pedagogical staff as those employees who

- › work in an institutionalised day-care centre for children not yet attending school and
- › provide early childhood education and care.

Thus, pedagogical staff include childcare workers with a degree in preschool education, social pedagogues, curative educators (in German: Heilpädagoginnen und Heilpädagogen) or possess some other form of pedagogical education. Furthermore, it includes non-professionals like apprentices, people completing a voluntary social year (in German: freiwilliges soziales Jahr, Bundesfreiwilligendienst), interns, trainees and volunteers who are employed to provide any form of education and care services. At the same time, this excludes employees with non-pedagogical tasks, such as administrative employees, janitors and kitchen staff. Persons who only fulfil managerial tasks (full-time directors) were also excluded from this survey since they are targeted in the ERiK director survey (see 3.4).

The KJH statistics (part III.1) survey and distinguish between pedagogical, administrative, janitorial and technical staff (Statistisches Bundesamt 2019b). It lists the same occupational groups as ERiK (such as professionals and non-professionals) as pedagogical staff, but explicitly excludes volunteers. However, while the KJH statistics also consider directors as pedagogical staff, ERiK lists them separately if they do not perform any pedagogical tasks. Nonetheless, it

is possible that directors took part in the pedagogical staff survey in situations with teams of directors or a substitute completing the director survey.

### 3.6 Parents of Children in Day-Care

As previously mentioned, the parent survey is part of the DJI Childcare Study (KiBS). KiBS is funded by the BMFSFJ and has conducted annual large-scale surveys of parents of children from birth to the end of their attendance at primary school (usually age 12) since 2012 (from 2012 until 2015 under the name KiföG-Projekt). The target population is defined as those parents who have custody of an anchor child living together with them in a household. In addition to information about the responding parent of the targeted child, proxy information about the other parent, the partner and the anchor child is obtained. According to the Federal Statistical Office, at the end of 2018 there were about nine million children under 12 years (Statistisches Bundesamt 2020). ERiK only targets parents of children in Germany prior to the start of their school attendance.

### 3.7 Children in Day-Care

ERiK includes the perspective of children themselves on the quality of the childcare that they receive, and thus surveys children. The target population is defined as children

- › aged four or over,
- › who attend a day-care centre, and
- › do not attend school yet.

Children are included in the official KJH statistics if they attend a day-care centre or if they receive any form of publicly financed day-care (§ 98 section 1 SGB VIII). According to the Federal Statistical Office, around five million children up to the age of six were not yet attending school at the end of 2018 (Statistisches Bundesamt 2019a). Of those, around four million children regularly attended a day-care centre or were cared for by a family day-care worker (Statistisches Bundesamt 2019b). In 2020, the target population of children aged four or over who attend a day-care centre but do not attend school yet, totalled nearly two million children in Germany (Statistisches Bundesamt 2020).

## 4. Sampling Frame

The previous chapter introduced ERiK's seven distinct target populations: youth welfare offices, family day-care workers, providers of childcare, directors of day-care centres, pedagogical staff in these centres, parents and children. This chapter presents the respective sampling frames of these target populations and assesses their coverage with regards to the target population.

### 4.1 Sampling Frame of Youth Offices

The DJI has extensive experience in conducting surveys of German youth welfare offices. The projects "Jugendhilfe sozialer Wandel" (JHSW for short) and "Qualität in der Kindertagespflege" (QuidKit for short) (Gandlgruber 2019; Burg/Hess 2017) already compiled address lists for youth offices and shared them with the ERiK project. By October 2019, ERiK had collated and updated the information in both lists, which resulted in a list of youth offices that contained the name of the institution, the postal address, the federal state and its email address. By October 2019, a total of 575 youth office entries existed (N= 575). The survey of youth offices was a complete survey targeting all youth offices in Germany. However, between updating the address list and starting the survey in the field, the coverage of the sampling frame could potentially have decreased due to reforms in the municipal structure. But to our knowledge, no further reforms have taken place between updating of the sampling frame and the start of the field work.

### 4.2 Sampling Frame of Family Day-Care Workers

A complete official list of family day-care workers in Germany does not exist. However, given that youth offices provide financial funding and/or other services to publicly funded family day-care workers and large family day-care facilities located within their respective districts (see 3.2), they have the contact details of this target population. Thus,

ERiK asked youth offices to forward questionnaires to family day-care workers located within the respective youth office district in order to gain access to this hard-to-reach population. The official KJH statistics use the same approach to gather information on this population, but the provision of information for the KJH statistics is mandatory (in German: Auskunftspflicht) for youth offices (§ 102 SGB VIII). The number of family day-care workers in the federal states ranges from 183 in Saxony-Anhalt to 15,237 in North-Rhine-Westphalia and totals 44,722 in Germany.

However, the sampling frame may be incorrect with regard to the target population due to two restrictions: first, it is possible that when distributing materials the youth office considers only those family day-care workers that are funded by the youth office instead of all of those with a valid permit. Second, there is a possibility that youth offices list inactive day-care workers, such as family day-care workers currently on parental leave or who have already retired.

Youth offices have no register of completely privately funded family day-care workers when they have no permit. Hence the youth offices rely on the same information as the official statistics when forwarding the questionnaires. This means that ERiK targeted the same population as the KJH statistics, resulting in the same undercoverage problems.

There is one difference, however: the ERiK survey only targeted family day-care workers and large family day-care facilities that currently provide care for children who are not yet attending school. If the family day-care workers did not provide care for these children, they were excluded after sampling.

### 4.3 Sampling Frame of Providers of Childcare

Due to the fact that there is no nationwide register of providers of childcare in Germany, there is no reliable sampling frame of childcare

Table 4.3-1: Match between commercial Nexiga list of providers of childcare and federal state lists (excluding Saxony)

	N	%
Only Nexiga list	8,225	34.9
Only ministerial list	9,201	39.0
Match between both lists	6,151	26.1
Total	23,577	100

providers. ERiK's request to the German federal states for lists of childcare providers in their respective state resulted in an incomplete list. For example, no official list of childcare providers was available in Saxony. ERiK therefore procured a commercial list of providers of childcare from Nexiga GmbH. Nexiga scanned a web-based platform called *kita.de* for the addresses of providers of childcare and found 14,868 addresses of providers, after deleting duplicates. The web-based platform *kita.de* is provided by VGL Verlagsgesellschaft mbH. It generates information on providers of childcare from reports by childcare providers, day-care institutions, childcare recipients, and from research using online sources that the *kita.de* staff conduct (*kita.de* 2020). However, despite the fact that registration on the platform is free of charge, *kita.de* staff believe that some childcare providers may not have registered themselves and may be hard to find via online searches.

The Nexiga list comprises the name of the childcare provider, their postal address, the district code (*Gemeindegennzahl*), and the administrative district of the youth office (*Jugendamtsbezirke*). For some of the listed providers, the Nexiga list includes additional information: for 22 percent, the list mentions the number of places funded by the provider, and for 40 percent it names the type of provider, such as catholic, protestant, or municipal. ERiK screened the names of the childcare providers for this type of information, and was thus able to identify the type of an additional 50 percent of listed providers (e.g. if the word "catholic" was part of the name, the provider was coded as a catholic provider).

We compared the information on providers between the commercial Nexiga list and the combined list from the 15 federal states: about 6,200

addresses were identical in both lists (about 26 percent). However, about 35 percent of providers included in the Nexiga list could not be matched to the respective federal state list, and 39 percent of the providers included in the federal state lists could not be matched to the Nexiga list (see table 4.3-1). In total, the Nexiga list consisted of 15,020 cases including Saxony (14,376 cases excluding Saxony) whereas the federal state lists together comprised 15,352 providers.<sup>1</sup> The Nexiga list contained information for all federal states and appeared to be more up to date. ERiK therefore decided to use the Nexiga list as the sampling frame, despite the fact that the total number of providers included was lower than in the federal lists. It is clear that the Nexiga list does not cover the entire target population (undercoverage error), yet it is not possible to deduce to what extent, as both lists include an unknown number of non-eligible cases and complete information is not available on the population.

#### 4.4 Sampling Frame of Directors and Pedagogical Staff at Day-Care Centres

In Germany, no official register exists for day-care centres, which results in the absence of a reliable sampling frame.<sup>2</sup> To gather contact information of childcare centres, ERiK thus pursued the same strategy as it did with providers of childcare: first, ERiK requested official lists from the German federal states and second, it procured a commercial list from Nexiga GmbH.

The commercial Nexiga list consists of information from three different databases. Nexiga again used *kita.de* (an online register of providers of childcare and childcare centres) as the main source of information, but gathered additional information from two commercial data providers, Quadress and Schober. Information from these databases supplements the list from *kita.de* but does not provide additional information (e.g. about providers). However, *kita.de* includes information on both providers of childcare and childcare centres, which enabled ERiK to link the list

1 These numbers (as well as those in Table 4.3-1) include 152 cases that remained in the Nexiga data erroneously after quality checks. They are reported here as these are the numbers that were used for sampling.

2 For example, the KJH statistics surveys day-care centers with the help of youth welfare offices, which forward the questionnaires to the directors of day-care centres.

of providers of childcare with the list of childcare centres.

The list comprises a total of 54,530 centres. After adjusting it for duplicates that have the same addresses, the list still contains 50,360 addresses ( $n=50,360$ ). Overall, the list contains information about the name of the childcare centre, the postal address, the district code (Gemeindekennzahl) and the administrative district of the youth office (Jugendamtsbezirke). In addition, the list gives information about the number of available places and the type of childcare provider for some of the day-care centres.

Institutions that exclusively offer after-school care for school-age children should not be included in the sampling frame because only non-school children are part of the target group. Thus, we screened the Nexiga list for these centres by searching for “Schule” (in English: school) or “Hort” (in English: out-of-school care for school age children) in the names of the institutions. We excluded 534 cases from the Nexiga list that both contained “Schule” and “Hort” within the names of the childcare centres because random checks of these cases reliably revealed only non-eligible cases.

The lists from the federal states included different information. Therefore, we were unable to use them for sampling, but could use them to conduct a quality check of the Nexiga list. Thus, we created a general list for Germany by combining the different lists from the federal states, which was then compared with the Nexiga list via the centres’ addresses. This procedure achieved a match of about 47 percent (see table 4.4-1). About one quarter of the Nexiga list did not match with the federal state list. In order to ascertain the number of non-matches due to misspellings, we checked the addresses within Nexiga that did not match corresponding addresses in the data set exactly. Prior to sampling of the centres, we checked

3,347 addresses and made 309 corrections. Following these corrections, we again merged both data sets, resulting in a higher number of matched cases. Therefore, we assume that about 9 percent of the non-matched cases exist with smaller deviations in both lists. However, this still means that there is likely considerable coverage error in the sampling frame.

#### 4.5 Sampling Frame of Parents with Children in Day-Care

The KiBS sample was drawn from the official registers of local authorities. This means that parents of unregistered children are not included in the sample.

Because of time lags between birth, registration, sampling and questionnaire completion, the selection probability for children aged two months or under is very small. Consequently, KiBS de facto sampled parents of children registered in the official registers from the age of three months to the age of 11 years in Berlin and Brandenburg and to the age of ten years in all other states. The wider age range in Berlin and Brandenburg is due to the fact that primary school lasts two years longer in these states.

However, when asked retrospectively about the month in which the child entered childcare for the first time, only 0.7 percent of all parents stated an age of under three months (Aust et al. 2019). Given the fact that ERiK’s target population is parents of children who attend childcare, the under-coverage of parents of very young children is only a minor issue.

Since every parent potentially has more than one child, it is possible that parents are sampled for more than one child. In this case, the parent would only be surveyed once, which could potentially lead to an underrepresentation of children with siblings.

The questionnaire of KiBS included questions specifically designed for ERiK. These were asked only to the subsample of parents of children attending daycare, but not school.

#### 4.6 Sampling Frame of Children in Day-Care

ERiK’s goal is to provide a multi-actor perspective on the issue of childcare. Thus, only centres in which the director and at least one member of

Table 4.4-1: Match between commercial Nexiga list of centres and federal state lists

	N	%
Only Nexiga list	17,172	24.4
Only ministerial list	20,110	28.5
Match between both lists	33,188	47.1
Total	70,470	100

pedagogical staff took part in their respective survey will be included in the sampling frame for the children survey. Furthermore, we do not possess lists of children attending the different day-care centres; only the respective directors do. Due to these two reasons, the sampling frame depends on the realised sample of centres ( $n=2,211$ ). It is reasonable to assume that the directors' lists are a reliable representation of all children attending the day-care centres.

Day-care centres that only provide care for children under three years as well as centres exclu-

sively for children attending school (in German: Horte) will be excluded from the sampling frame. Additionally, centres were excluded if their response to the question regarding the number of children in our target population was deemed implausible. This will result in a sampling frame of  $n=1,850$  centres that provide care for at least six children aged three years or older but not yet attending school and for which completed director and pedagogical staff questionnaires are available.

## 5. Sampling Designs

Different sampling designs were established for the different target populations. Given that for several of the target populations access was gained via youth welfare offices or childcare centres, multistage sampling approaches reflecting the multistage access to the target populations were implemented in some of the sampling designs. Specifically, due to the lack of sampling frames, indirect sampling strategies were used for day-care workers, pedagogical staff and children (for an introduction to indirect sampling, see Lavallée 2009). In the following, the designs of the implemented sampling strategies are described briefly for each established sample. Based on the experiences of the first wave, the sampling designs will be adjusted for the subsequent wave.

### 5.1 Sampling Design for Youth Offices and Family Day-Care Workers

The nationwide survey of youth offices and family day-care workers started on 13 March, and officially ended on 14 September 2020.

The sampling design of youth offices was a complete survey of the target population. Thus, ERiK contacted all youth offices in the sampling frame.

In a two-stage sampling design, we asked youth offices to forward the ERiK questionnaire to family day-care workers. Direct contact with family day-care workers was not possible, yet the youth offices have the contact details of the family day-care workers holding a valid permit in their district.

The sampling of family day-care workers was designed to provide random samples for the underlying populations. ERiK aimed in this survey to

1. survey 2,500 family day-care workers,
2. achieve representative findings on the federal state level, and
3. minimise the number of youth offices involved.

The ERiK monitoring programme and the German federal states agreed on different minimum sample sizes depending on the states' number of youth offices and family day-care workers. Thus, in smaller federal states, each or most of the youth offices had to contact family day-care workers.

To avoid burdening youth offices with requests, not all youth offices were asked to forward questionnaires to family day-care workers. In 2017, each youth office registered on average 76 family day-care workers, of which half should be contacted (so 38 on average) (own calculations based on Statistisches Bundesamt 2017).

Taking these guidelines into account, the sample of family day-care workers was a stratified two-stage cluster sample, with the youth offices being the clusters from which the day-care workers were drawn. It was stratified by federal state, which means that the population was divided into different subgroups or strata (in this case federal states) and the samples were drawn separately in each state.

In order to reach the target number of completed questionnaires, we calculated the gross sample of day-care workers needed by taking into account average response rates of previous studies about youth offices and family day-care workers. The average response rate for youth offices in comparable studies (BMFSFJ 2017; JHSW 2014, 2009) is about 54 percent. We therefore assumed that about 54 percent of the youth welfare offices in our survey would participate and forward questionnaires to family day-care workers within their district.

Previous studies on day-care workers in Germany achieved an average response rate of about 28 percent (e.g. OECD 2019; Viernickel/Ihm/Böhme 2019; Landesverband Kindertagespflege 2018; Mayer et al. 2013). In addition, an average of 0.3 percent of day-care worker addresses were considered non-eligible in these previous studies and taken into account for our calculations.

These considerations resulted in 236 youth offices that should forward questionnaires to about

Table 5.1-1: **Sample Design, 1st wave, ERiK, youth offices and family day-care workers**

	Youth offices		Day-care workers	
	N	%	N	%
Gross Sample	575	100	16,693	100
Subsample A (youth offices OQ/MQ & day-care workers OQ/MQ)	267	46.4	10,488	62.8
Subsample B (youth offices OQ/MQ without day-care workers)	144	25.0	–	–
Subsample C (youth offices OQ & day-care workers OQ)	43	7.5	1,546	9.3
Subsample D (youth offices OQ/MQ & day-care workers OQ)	121	21.0	4,659	27.9

9,000 family day-care workers. As a precautionary measure, we increased the number of youth offices to 431 and the number of family day-care workers to about 17,000.

To prevent seasonal bias and to design an approach responsive to fieldwork developments, the sampling design considered different months of data collection. Therefore, the sample was randomly divided into two tranches. However, the coronavirus pandemic caused delays, which made this time-lagged approach unfeasible and ultimately led both tranches to start on the same date.

Previous German studies on ECEC varied with regard to their field length, response rates and the survey mode(s) applied. At the same time, a best-practice standard with regard to contacting and surveying youth offices as well as family day-care workers does not exist in the field. However, from methodological research we know that

1. response rates are particularly high if survey modes are adapted to the preferences of respondents such as their survey mode preferences (Dykema et al. 2013) and
2. the higher the effort for respondents to participate, the less likely they are to participate.

Following these two principles, we included two method tests in our sample design. We randomly split the gross sample of youth offices into four subsamples.

1. Subsample A was allowed to either respond via online questionnaire (OQ) or with pen and paper on a mail questionnaire (MQ) and was asked to distribute questionnaires to family day-care workers residing in their district who were allowed to either respond online (OQ) or with pen and paper (MQ).
2. Subsample B was asked to either respond online or with pen and paper (OQ or MQ) and was not asked to distribute questionnaires

and any further materials to family day-care workers.

3. Subsample C was asked to respond online (OQ only) and to distribute questionnaires to family day-care workers within their youth office district who were in turn also asked to respond online (OQ).
4. Subsample D was allowed to either respond online or with pen and paper (OQ or MQ) and was asked to distribute questionnaires to family day-care workers within their youth office district who only had the option of responding online (OQ).

With the respective method test results, we hope to gain knowledge about the survey mode preferences of youth offices and family day-care workers as well as the consequences of asking youth offices to distribute materials e.g. on their response behaviour. Table 5.1-1 sums up the different survey modes and details the respective subsample sizes.

## 5.2 Sampling Design for Providers of Childcare

The survey of providers of childcare started on 14 May, and officially ended on 14 September 2020.

ERiK aimed to survey a minimum of 2,000 providers of childcare (net sample). As with day-care workers, we calculated a gross sample by taking the expected response rate (33 percent) and the expected share of non-eligible cases (10 percent) based on previous studies (e. g. BMFSFJ n.d.; Schneider 2018; Mamier et al. 2003) into account, resulting in 8,000 for the gross sample.

When sampling the providers of childcare, we aimed for a representation of the landscape of childcare facilities. We thus stratified the sample by federal state and provider size, giving

Table 5.2-1: **Sample Design, 1st wave, ERiK, providers of childcare**

Tranches/Subsample:	Providers	
	N	%
Gross Sample	14,942	100
Tranche 1, subsample A (OQ/MQ)	7,318	49.0
Tranche 1, subsample B (only OQ)	585	3.9
Tranche 2, subsample A (OQ/MQ)	164	1.1
Tranche 2, subsample B (only OQ)	6,875	46.0

Note: The gross sample of n=14,942 includes 74 cases that were deleted after sampling tranche 1 because they erroneously remained in the list after the quality test of the Nexiga list. As the remaining 78 erroneous cases were deleted before sampling tranche 2, the gross sample differs from the sampling frame of n=15,020.

providers with many facilities a higher probability of being sampled.

However, the response rate was much lower than expected, which forced us to increase our gross sample by conducting a complete survey of all providers in the Nexiga list. To this end, we added a second tranche, contacting all remaining providers of childcare in our gross sample (the list from Nexiga). Thus, ultimately the size of the provider had no effect on the probability of being sampled.

Similar to our approach with youth offices and day-care workers, we randomly partitioned the tranches into subsamples for a method test. Subsamples 1a and 2a received both online (OQ) and paper questionnaires (MQ), while subsamples 1b and 2b only received online versions of the questionnaire (see Table 5.2-1). Future studies of providers could use this test to determine if it is possible to reduce costs by focusing on the online mode.

### 5.3 Sampling Design for Directors and Pedagogical Staff at Day-Care Centres

The first wave of the surveys of directors and pedagogical staff started in Germany on 29 April and ended on 31 August 2020.

The aim of the sampling of day-care centres was to survey a minimum of 4,500 directors. We moreover sought to gather information about the pedagogical staff within centres where the director responded.

ERiK and the German federal states agreed on different minimal numbers of cases (categorised

in five groups roughly proportional to the number of centres in the state). Thus, we stratified the sample of day-care centres across the German federal states and took random samples in each state independently.

To calculate the gross sample, we screened previous studies of directors and pedagogical staff at day-care centres.<sup>1</sup> The average response rate in previous day-care centre surveys was about 42 percent and an average of three percent of the addresses of day-care centres were non-eligible. After taking non-eligible cases and non-responses into account, we derived a gross sample of directors of n=12,000 with an expected net sample of about n=4,900.

The sample of pedagogical staff depended on the sample of (directors of) day-care centres. In line with the broad definition of our target population, here pedagogical staff, the number of distributed questionnaires per centre had to be reasonably large to ensure that part-time employees, trainees and people completing a voluntary social year had a chance to be surveyed. At the same time, the number of centres had to be reasonably high to ensure that internal validity would be achieved and the clusters (day-care centres) are representative of the target population as a whole.

On average, one day-care centre employs eleven pedagogical staff (Statistisches Bundesamt 2016), of which we decided to target half; so five in each centre. This means the sampling process of pedagogical staff resulted in a stratified two-stage clustered sample, where the day-care centres are the clusters and the federal states are the strata.

We assumed that 50 percent of directors would forward the questionnaires to their pedagogical staff, hence we calculated a gross sample of about n=45,000 to reach our minimum of n=8,000 completed pedagogical staff questionnaires.

To prevent seasonal bias and to design an approach responsive to fieldwork developments, the sampling design considered different months of data collection. Therefore, the sample was randomly divided into two tranches. However, the coronavirus pandemic caused delays, which

1 Geiger (2019); OECD (2019); Turani (2019); Buschle/Gruber (2018); Leibniz-Institut für Bildungsverläufe e.V. (2018); Strehmel/Kiani (2018); Bauer (2017); Fröhlich-Gildhoff et al. (2017); Granzow (2017); Pooch/Kappler (2017); Schober et al. (2017); Wölfl/Wertfein/Wirts (2017); Schreyer et al. (2014); Viernickel/Voss (2013); Behr/Walter (2012); Seckinger et al. (2012); Maurice et al. (2007); Pluto et al. (2007).

Table 5.3-1: **Sample Design, 1st wave, ERiK, directors and pedagogical staff at day-care centres**

	Directors		Ped. staff	
	N	%	N	%
Gross Sample	13,200	100	48,000	100
Tranche 1, subsample A OQ/MQ with dissemination to the pedagogical staff (OQ/MQ)	4,700	35.6	23,500	49.0
Tranche 1, subsample B only OQ with dissemination to the pedagogical staff (only OQ)	900	6.8	4,500	9.4
Tranche 1, subsample C OQ/MQ without dissemination to pedagogical staff	900	6.8	–	–
Tranche 1 (former T2), subsample A OQ/MQ with dissemination to the pedagogical staff (OQ/MQ)	3,400	25.8	17,000	35.4
Tranche 1 (former T2), subsample C OQ/MQ without dissemination to the pedagogical staff	2,100	15.9	–	–
Tranche 2 (former T3), subsample A OQ/MQ with dissemination to the pedagogical staff (OQ/MQ)	603	4.6	3,000	6.3
Tranche 2 (former T3), subsample C OQ/MQ without dissemination to the pedagogical staff	597	4.5	–	–

Note: Percentages might not add up to 100 due to rounding.

made this time-lagged approach unfeasible and ultimately led both tranches to start on the same date (in April 2020).

However, due to a lower-than-expected response rate (possibly due to the coronavirus pandemic), we added a third tranche that started in mid-July. Overall, including tranche 3, we consequently had a total of  $n=13,200$  for directors. For pedagogical staff, due to the dissemination of the questionnaires to half of the average pedagogical staff ( $n=5$ ), we used a gross sample of  $n=48,000$ .

As with our approach with youth offices and family day-care workers, we randomly split the sample into three subsamples for a method test. The subsamples varied in the questionnaire mode options (OQ and MQ or only OQ) and with regards to the request of forwarding questionnaires to the pedagogical staff:

1. Subsample A was allowed to either respond online or with pen and paper (OQ or MQ questionnaire) and was asked to distribute questionnaires to the pedagogical staff in their centre who were allowed to either respond online (OQ) or on paper (MQ).
2. Subsample B was asked to respond online (OQ) and to distribute questionnaires to the pedagogical staff in their centre who only had the option of responding online (OQ).
3. Subsample C was allowed to either respond online or with pen and paper (OQ or MQ) but was not asked to distribute any material to the pedagogical staff.

With the results of this method test, we hope to gain insights into the survey mode preferences of

directors and pedagogical staff in day-care centres as well as the consequences of asking directors to distribute materials e.g. on their response behaviour. Future studies of directors and pedagogical staff could use the results of this test to determine if it is possible to reduce costs by focusing on the online mode. Table 5.3-1 sums up the different survey modes and shows the respective sizes of the tranches and subsamples.

## 5.4 Sampling Design for Parents of Children in Day-Care

The survey of parents of children in day-care was conducted by KiBS from 15 March 2019 until 7 October 2019.

The target net sample of the KiBS survey was  $n=32,800$  children, for each of whom one parent should be surveyed. The sampling frame of KiBS was stratified on two characteristics: German federal states (with 16 strata) and children's age groups (with 3 strata). In each federal state, KiBS aimed for the following sample sizes: 800 children under three years, 500 children aged three to five years as well as 750 children aged six to ten years (aged six to 11 years in Berlin and Brandenburg).

The KiBS sample consists of two parts: a panel from previous waves and a refresher sample to supplement the panel cases. The gross sample consisted of  $n=115,562$  cases of which  $n=26,334$  cases came from the panel and  $n=89,228$  cases were drawn from registers in 550 sample points (municipalities) as the refresher sample (for more details, see Aust et al. 2019).

For ERiK, only children that do not yet attend school are of interest. Thus, parents of children entering the school system were excluded.

The survey was conducted as a mixed mode survey combining computer assisted telephone interviews (CATI), mail questionnaires (MQ) and online questionnaires (OQ). If a telephone number was available, a telephone interview was conducted, otherwise respondents received a paper questionnaire via mail. Both groups also had the option of responding online.

### 5.5 Sampling Design for Children in Day-Care

Sampling of centres for the children survey is planned for autumn/winter 2021, after which the surveys of centres and parents are planned to start in spring 2022 and the survey of children in summer 2022.

The sampling design will follow a two-stage process in which the day-care centres are sampled in a first step: from the  $n=1,850$  centres in the

sampling frame,  $n=550$  will be sampled proportionately to the number of children in the federal states, stratified by the size of the municipalities (seven categories ranging from “Less than 2,000 inhabitants” to “More than 500,000”). These centres will be asked to forward the parent survey to all parents whose children are aged four or over and attend the centre. For this purpose, the centres will on average receive 45 sets of printed contact materials with the option of printing more if required. When parents have two or more children in the target population that attend the centre, their answers should refer to the youngest child in the centre aged over four years. Consequently, only the youngest child will potentially be interviewed.

In the second step, the children of the parents who completed the parent survey and gave their permission for their child to be surveyed will be sampled randomly. To increase the probability that the targeted net sample of  $n=600$  with four children per centre is achieved, we will sample six children per centre to account for potential illness or absence on the interview date.

## 6. Fieldwork Results and Response Rates

### 6.1 Parent Survey

The parent survey was conducted by the infas Institute for Applied Social Sciences from March to October 2019. Three different survey techniques were used: if a telephone number was available, the household was contacted via telephone after information was first provided about the survey by post. If requested, a link to the online questionnaire was provided instead of the CATI. This resulted in 57 additional OQ cases. If no telephone number was available, the parents were invited to participate via online or mail questionnaire. They received a letter with a paper questionnaire and a link plus code for the online version. Thus, they could choose their preferred mode to participate.

The non-contact rates in both samples were substantial: no contact could be established with 28 percent of the panel sample and 67 percent

of the refresher sample. In total 560 cases were classified as non-eligible. In most cases, these children were no longer part of the target population because they had already left primary school. The number of non-eligible cases is likely much higher, but as the contact rate was so low, it is impossible to establish the exact number.

Especially in the case of MQ, very few potential respondents explicitly refuse or answer that they no longer belong to the target population. Consequently, less than 1 percent of the MQ sample explicitly refused to participate. In contrast, in the CATI samples 9 percent of the panel sample and 23 percent of the refresher sample declined to participate in the survey. Overall, 63 percent of the panel sample and 17 percent of the refresher sample participated in the survey and conducted a valid interview. The details can be seen in Table 6.1-1.

Table 6.1-1: **Fieldwork Parents Survey**

	Panel Sample		Refresher Sample	
	N	%	N	%
Gross sample	26,334	100	89,228	100
Non-eligible	440	1.7	120	0.1
Refusal	1,612	6.1	4,894	5.5
Non-contact	7,392	28.1	59,619	66.8
Nonresponse - other	301	1.1	663	0.7
Unknown eligibility	–	–	8,609	9.6
Interview invalid	47	0.2	39	0.0
Interview valid	16,542	62.8 100	15,284	17.1 100
CATI	10,996	66.5	3,772	24.7
OQ	1,721	10.4	3,184	20.8
MQ	3,825	23.1	8,328	54.5

Note: Percentages might not add up to 100 due to rounding.

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# ERiK Methodological Report I

## Target Populations, Sampling Frames and Sampling Designs of the ERiK-Surveys 2020

The ERiK Methodological Report I informs about the methodological concept of the ERiK-Surveys 2020 on quality of child day-care in Germany. In particular, it describes the target populations, sampling frames and sampling designs for the seven surveyed populations.

The German Youth Institute (DJI) is one of the largest social science research institutes in Europe and plays a central role in current research into the life situations of children, young people and families. The DJI's empirical studies both aim to contribute to the state of the art of research in the field as well as provide key impulses for professional practice. In addition to its scientific focus, the DJI provides policy advice to the German national government, the German federal states and local authorities.

### **Authors:**

Diana D. Schacht, Benjamin Gedon, Jakob J. Gilg, Christina Klug, Susanne Kuger