FSA 22-09-06 - Public Analyst Official Laboratory System: Our Approach to Building a Resilient System

This paper explains the official laboratory system in the UK and gives a recommended approach to build GB testing capability and resolve the current challenges within the system.

1. Summary

1.1 Public Analyst (PA) Official Laboratories (OLs) are laboratories designated to analyse chemical and compositional food and feed samples, sent by local authorities or Port Health Authorities (PHAs) for enforcement and surveillance purposes.

1.2 There has been a steady decline in the capacity and capability of the PA OLs, leading to concerns over the capacity and capability of the system. In 2019, a paper was brought to the FSA Board which outlined the state of the system.

1.3 Since then, the UK has left the EU and the Covid-19 pandemic has occurred, leading to additional pressure being placed on the system.

1.4 The current system is highly reliant on local authority sampling activity, which has reduced significantly over recent years, and as a result has led to a system that has seen a chronic decline in overall capability and capacity and is less able to invest in the future.

1.5 As a result, direct intervention is needed to ensure further decline is prevented and that the UK retains and builds the testing capacity and capability required to undertake routine testing, support incidents and enable research-related analysis.

1.6 This paper provides a recommended approach to build GB testing capability and resolve the current challenges within the system.

1.7 The Board is asked to:

- note the work undertaken to date; and
- agree the proposed short to mid-term (Phase Two) approach to supporting a UK food and feed official laboratory system
- provide feedback on the long-term approach (Phase Three)

2. Background: the official laboratory system in the UK

2.1 The FSA is responsible for designating food and feed testing OLs in England, Wales, and Northern Ireland, with Food Standards Scotland (FSS) being responsible for OLs in Scotland. Chemical and compositional analysis is provided by PA OLs.

2.2 PA OLs are the laboratories responsible for analysing samples taken by local authorities and Port Health Authorities (PHAs) to enforce official controls and consist of a combination of

private and local authority owned laboratories. PA OLs also play a vital role in undertaking surveillance sampling and providing surge capacity to test additional samples during a food incident. Over recent years there has been a decline in both the capacity and capability within this system.

2.3 The role and requirements to be a PA is set out in the Food Safety Act 1990 and food and sampling qualifications for England, Northern Ireland, Wales and Scotland. Under the Act, chemical and compositional samples are required to be tested under the direction of and they are the only individuals that can sign a certificate of analysis (CoA) in response to a local authority submitting a sample for enforcement purposes. This document can be used in legal proceedings if required.

2.4 National Reference Laboratories (NRLs) are designated by an appropriate authority and their requirements are set out in regulation. They provide method development, quality assurance and proficiency testing services to the PA OLs. Figure 1 provides an infographic outlining how the system works.

Figure 1 Current flow of Official Samples

2.5 The FSA's vision for 2022-2027 is "Food you can trust." Building a resilient PA OL system is vital to ensure the safety and standards of the food we eat. The FSA Strategy also commits the FSA to "reform and improve the system, to address the decline in capacity and build a resilient Official Controls laboratory system."

2.6 Most microbiological testing is undertaken by the UK Health and Security Agency (UKHSA) in England, Public Health Wales (PHW) in Wales, and the NI Public Health Laboratory in Northern Ireland and is therefore out of the scope of this paper.

2.7 The approach outlined is focused on England and Wales only. Food Standards Scotland are in the process of developing a more resilient system for their PA OLs and a paper was presented to their board in June 2022.

2.8 Northern Ireland does not have any PA OLs located within it and under the conditions of the Northern Ireland Protocol, NI samples cannot be sent to GB laboratories for testing, resulting in the majority of testing having to occur in the EU. Given the uncertainty around the Northern Ireland Protocol (NIP) and the differences in the PA OL systems NI are not considered in this paper and is being considered separately.

3. Challenges facing the current OL system

3.1 The PA OLs receive no direct funding from the FSA to ensure they have sufficient capability and capacity to test across our chemical and compositional regulations. While some funding does come from the FSA for surveillance and official control sampling contracted to participating PA OLs, most funding for the PA OL system comes from LAs sending in samples for analysis.

3.2 The amount of sampling undertaken by local authorities has dropped significantly (Figure 2). Enforcement sampling by local authorities for non-microbiological samples have dropped across England, Wales, and NI by an average 79.1% since 2016. The 71.7% decrease in enforcement sampling in England from 2014 to 2019 indicates that this has been a steady decline over an extended period, even before the COVID-19 pandemic.

3.3 This overall reduction in sampling was partially driven by the ending of the FSA's National Coordinated Sampling Programme (NCSP) in 2016-17. The programme was ended due to it being complex and delivering poor value for money. It cost £2.2M at its peak in 2013-14 and was not providing the desired outcomes. Many local authorities have struggled to replace this funding and as such often take relatively few samples annually.

Figure 2 Graph of official sampling rates in England, Wales and Northern Ireland, 2014-2021, from Local Authority Enforcement Monitoring System (LAEMS) data. Percentage reduction of official samples shows change between 2014 and 2021 per nation.

3.4 As PA OL funding is tightly coupled to local authority sampling rates, there has been a marked and consistent decline in the funding and investment within the system. This has led to multiple laboratory closures. In 2013, there were nine PA OLs with seven being owned by local authorities. Now there are only 5 PA OLs; 3 owned by local authorities and 2 private laboratories.

3.5 This decline has led to most official samples being tested by private laboratories, increasing the risk of capability gaps emerging, where testing is not profitable to undertake.

3.6 While there is sufficient capability and capacity in most testing areas, to meet current demand, there is a strong likelihood that this decline will continue and, if action is not taken, the FSA, local authorities, and other government departments will not be able to access the

laboratory capability they require for enforcement, surveillance and research and development.

3.7 The closure of PA OLs has also reduced our ability to scale up sampling in an incident, with the overall baseline capability in the system driven by local authority sampling rates.

3.8 Whilst NRLs undertake quality assurance, method development and proficiency testing, they do not commonly analyse samples for official controls. This is because the testing they undertake is often too expensive (due to the complexity of the analysis and it often not being commercially offered due to low private demand) for PA OLs to send to an NRL for analysis. As a result, there is underused capacity in the NRLs for Official Control testing, albeit largely inaccessible under the current system.

3.9 Additional testing capability and capacity has been historically provided by EU-based laboratories. Following EU Exit, this has been impacted by logistical issues (e.g., testing samples being detained at EU ports which increases turnaround times for local authorities receiving results) and hence making this a less robust fall-back position going forward.

3.10 Given these challenges, intervention is required and a move away from a system coupled solely to local authority sample numbers. Our engagement with local authorities (Annex 1) have indicated that there is unlikely to be any major increase in their current low sample rates, with many now taking few or no enforcement samples, due to sampling budget cuts and resource limitations. This reduction has had the largest impact on 'proactive' sampling; sampling taken with the purpose of uncovering previously unknown or emerging issues. For this reason, the FSA has increased the amount of targeted surveillance sampling it undertakes to address this gap.

3.11 However, while sampling is a critical part of any wider, future surveillance system, simply increasing local authority-taken sample numbers to a specific target is not the solution, for a few reasons:

- firstly, there is no means to accurately assess a meaningful 'ideal' number of samples. An FSA review of sampling in other countries found that there is considerable difference in how sampling activities are undertaken by other countries
- secondly, this approach does not adequately consider alternative, more efficient approaches to sampling; for example, avoiding duplication with sampling conducted by others (for example, industry), or the higher efficacy of targeted, risk-based sampling (for example, fewer samples taken but higher detection rates). For instance, the Food Industry Intelligence Network (FIIN) undertakes over 50,000 tests a year for authenticity
- finally, this neglects the capability-gap issue, where simply taking more samples in already well-sampled areas does not support niche or specialised testing needs, such as food contact materials, food supplements and genetically modified organism (GMOs). There are a considerable number of areas where samples are not required to be routinely tested, but capability needs to be retained to be able to respond to major incidents and to undertake surveillance

3.12 As a result, any new system must focus on targeted investment in UK onshore capability and capacity building across the UK national laboratories network (OLs and NRLs), rather than simply seeing more sampling as the 'magic bullet'. By shifting focus, we can ensure there is a national capability to test across the full range of chemical and compositional requirements, with the capacity to undertake testing in the event of a major incident. This will require a model that utilises different targeted investment approaches.

Figure 3 Infographic showing the key blockers in the current PA OL system

4. What makes a resilient PA OL system?

4.1 To build resilience in the PA OL system, five pillars (see Annex 2 for full descriptions of the pillars) were identified and adopted within the design of recommended system

- UK Onshore Capability and Capacity
- Future proofing
- NRL Support
- Upskilling of laboratory staff and Public Analysts
- Co-ordination across the official laboratory system, between government departments, OLs and NRLs.

4.2 To successfully deliver a resilient system that covers all five pillars, the following needs to be ensured:

- An increased ability to test across all our chemical and compositional requirements for official controls and surveillance

- Increased collaboration across the PA OL network to access and build specialisms.
- Improved resilience for UK capability and capacity to analyse samples and investment in future testing capability
- NRLs empowered to take on more of an active sampling role. This will cover novel and difficult capability gaps as well as providing extra capability and capacity in case of a major food or feed incident

5. Action taken to increase OL resilience to date

5.1 The FSA has already undertaken several actions to build OL resilience and maintain capability in the short-term. This is Phase One of building a resilient PA OL system.

5.2 Since 2020, the FSA has run an annual intelligence led retail sampling programme that tests hypotheses on where potential food safety and standards issues may occur and which provides valuable intelligence on the UK food system. This has enabled the testing of a wider range of risks and sample types than those routinely looked at by local authorities and helps OLs maintain capability in non-routine areas. The knowledge of future sampling activities also helps to justify internal investment to expand their testing capabilities and encourages the uptake of new methods.

5.3 The FSA is working with the UK NRLs to build capability, by delivering pilots for PA OLs in targeted areas to support capability in known critical capability gaps and increasing support for NRLs to enhance the role they provide for both routine and incident testing, for example, in the area of GM testing.

5.4 To identify the priority gaps in capability the FSA has worked with the Government Chemist to undertake a survey of capability the PA OL system (Annex 3). This survey's results will be used to target funding and investment in the future system.

6. Options for a future PA OL system

6.1 While the actions described above in Phase One have been able to provide support and maintain capability in the current system, in order address the serious structural challenges posed to the PA OL system, a longer-term solution is required. This is Phase Two of our future labs plan.

6.2 To support the delivery of this solution, the FSA bid for and obtained funding (£2.1M per annum) in the 2021 Comprehensive Spending Review (CSR), which we will use to deliver an improved system over the period from 2022-25. This uplift in investment was based upon a conservative business case, balanced against existing spending on NRLs and sampling, and identified gaps. It effectively doubles our budget for this area.

6.3 This funding will be used to both develop the future plan (e.g., through conducting discovery and evidence-gathering work) and implement a range of new measures, including investments in sampling, research, and laboratory capability and capacity building.

6.4 To deliver a resilient PA OL system in Phase Two, the FSA has undertaken a detailed analysis of four potential options:

- **1. Do nothing**: This option is the counterfactual to which we have compared the other three options against. The option of doing nothing has been ruled out. Firstly, there have been previous evidence-led reviews that called upon the FSA to immediately improve the laboratory system. These reviews highlight potential capability gaps in the UK and the risk of market failure in some testing areas. Without intervention there is a significant risk of the UK not having the food and feed testing capability required.

- **2. Centralisation**: This option would create a centralised PA OL function funded and owned by the FSA. This model would be analogous to the UKHSA model for microbiological testing or the food laboratory system in the Netherlands. The benefit of this approach would be that the FSA could develop a system in-house that covered all existing capability gaps and provide local authorities with a value-for-money service so they can discharge their duties as a local authority. However, this is infeasible to deliver in the short-term. Firstly, this option would be slow to deliver with a lack of existing infrastructure that could be used to deliver it, resulting in it being required to be built from the ground up. The process would also come with an exceedingly high start-up and maintenance costs. Local authorities also all have existing contracts with the current PA OLs which would lead to challenges in moving to new laboratory model. As an example of the timescale to deliver a centralised system, the Netherlands took 14 years to centralise their system, and this took significant financial investment to develop the central facility.
- **3. Increased reliance on the private sector**: This option would reduce the requirements needed to operate as a PA OL and utilise the capability of private laboratories that are not currently operating as PA OLs. This approach is similar to the Home Office's approach when they closed the Forensic Science Service (a full case study of this can be found in Annex 4). In summary, the market quickly shifted to only providing commercially viable services. This meant that if a niche forensic capability was required, it was either difficult, expensive, or impossible to acquire. This is already happening within the current PA OL system and this option would accelerate this. It is likely that many analytical tests will be so unprofitable that they will not be offered, and, as such, this option is not recommended.
- **4. Targeted intervention to support PA OLs and NRLs**: This system takes an evidence-led approach to supporting the existing PA OL system and ensuring it is resilient and sustainable. The Government Chemist survey (Annex 3) outlines existing capability gaps within the PA OLs in England and Wales. These gaps would be risk assessed and prioritised to target investment. The FSA would then target funding through four key workstreams (detailed in Annex 3) to fill these capability gaps, as at least an interim measure. To do this the FSA will draw on our experience and best practice of managing the UK's NRLs, which have been historically managed over many and funded by the FSA, over decades. This provides a model for how laboratories can be supported and directed to deliver in partnership, without direct ownership or control. The NRL function will also be bolstered to increase capability, particularly in novel and difficult testing areas. There is a risk that the system is predicated on the current PA OLs continuing to exist. This is mitigated through providing targeted funding with the FSA setting direction for capability. In the event of a laboratory closing, we could also target funding to other labs to replace any lost capacity and capability.

7. Recommended approach

7.1 A review of the options conducted by the FSA, has identified targeted intervention to support PA OLs and NRLs (Option 4) as the recommended approach to deliver a resilient future PA OL system. It allows the FSA to move at pace to target existing capability gaps and to provide the support needed to bolster the NRLs, so they can play a more active role in analysing samples. This approach is also the most flexible approach out of the options considered and meets the challenges within the current system identified in section 3 of this paper.

7.2 To ensure a complete national capability to test across chemical, compositional and authenticity testing, all investments will be onshored inside of the UK. The targeted intervention to support the existing PA OLs in England and Wales will mitigate the risk of further PA OL laboratory closures and ensure a resilient PA OL system can be built within the UK. This does not preclude the usage of laboratories outside of England and Wales (e.g., where significant surge capacity might be required for a major incident), but it does avoid overly heavy reliance on laboratory capabilities outside of the FSA's sphere of influence. We have established partnership working and engagement mechanisms with UK-based laboratories, and many retain UK

government or local authority-links.

7.3 This funding model with the PA OL system will need to provide a required capability and capacity as part of a service model and PA OLs would be required to meet key performance indicators (KPIs) set by the FSA. The approach is not core funding and does not tie the FSA into a long-term relationship with the PA OLs. This gives the FSA the flexibility to invest in wider laboratory capability as required to deliver a long-term model for official labs as required.

7.4 The need for pace is driven by the current consideration that there are now only five PA OLs in England and Wales. This poses a significant risk with further PA OL closures substantially diminishing capability and capacity within the system. The targeted intervention model provides the best mitigation of risk in the short to medium term, over the next 2-3 years:

- The centralised model would provide resilience in the long term when a full capability can be established. However, the slow start-up time and very high cost of this approach would leave the chemical and compositional system vulnerable without a short to medium term mitigation.
- The increased reliance on the private sector model risks market forces driving available capability and capacity and would not address the current challenges in the system, and instead likely worsen them. The private market is far less likely to offer niche and/or expensive analyses that nonetheless may be required for an official sample. This has already been experienced in forensic sciences with the decommissioning of the Forensic Science Service.
- Targeted intervention provides immediate improvement in capability to the PA OLs. Targeted support can be conditional on the continuation of the PA OLs being supported by local authorities and mechanisms can be put in place to ensure investment is not lost in the event of a PA OL closure. This model provides resilience within the existing system and builds the foundations for a longer-term OL model as part of wider government.

7.5 To deliver the ‘Pillars of Resilience’ outlined in 4.1, the following workstreams have been developed as part of our recommended approach. In developing this approach, we have engaged with key stakeholders in the laboratory system, including PA OLs, NRLs and the Government Chemist, to inform the best approach. The key deliverables are set out in Annex 5.

- **Targeted capability fund**: An annual survey will be sent to PA OLs to understand what the capability gaps within the UK. This will be used to inform and target investment in PA OLs in critical areas prioritised by the FSA.
- **Funding grant scheme**: This funding stream will provide an opportunity for PA OLs to apply for investment that they have identified. These applications will be considered and assessed by the FSA. For example, PA OLs may wish to invest in an additional piece of equipment, staffing or accreditation costs to support the maintenance of their ongoing testing capabilities.
- **NRL Capability Fund**: This funding will develop the NRLs to take on more active sampling and provide a fixed rate to PA OLs to send samples to them for novel and difficult analyses. This workstream will also increase the NRLs role in providing testing in response to incidents and develop new analytical methods.
- **Public Analyst Training Fund**: This funding will secure the future of the PA profession through providing resource to train new PAs and providing resource for PA OLs to backfill desk analysis work whilst a new PA is being trained.
- **Annual surveillance programme**: in addition to the above new workstreams, we will continue to support the now established annual intelligence-driven sampling programme, targeted to use OLs to deliver (ensuring ongoing throughput of samples)

7.6 The targeted intervention approach does carry some risk, in that it provides an ongoing support commitment for an existing cohort of laboratories, without direct control over how these are managed or indeed guarantee that any laboratories will continue to operate. However, the

Option 4 model has advantages in terms of flexibility. It is agnostic with regards laboratory-ownership model and would allow for redistribution of funds should (worst case scenario) any laboratories cease to operate, fails to sustain expected standards (e.g., maintaining accreditation) or indeed should any new operators join the market. The funding provided will be targeted and will come with conditions and contractual obligations. In this manner, service delivery can be directed, without the need of direct ownership.

7.7 Under Phase Two of the future laboratories plan, this additional support and investment will be made from the CSR21 settlement (£2.1M per annum). We will model and monitor the impact of this level of spending (based on the original CSR21 business case) and use this to baseline future spending and investment needs, beyond 2025.

8. The Long-term Future of Official Laboratories

8.1 Once the FSA has intervened in a targeted manner to secure a national chemical, authenticity and compositional capability in England and Wales, in the short and mid-term (Phase Two), a long-term approach can be considered to ensure the longevity of this national capability.

8.2 While Phase Two will improve the capability and capacity of the current system, it does so through maintaining a complex laboratory system, with multiple laboratories and stakeholders, and there is still a risk, though reduced, of future laboratory closures. There is a need to look at the longer-term vision for the future of the PA OL system. This will be Phase Three.

8.3 In Phase Three, we will build on the targeted intervention approach delivered in Phase Two. We will use it to identify what works effectively within the system and where gaps still exist or begin to emerge. This will be the evidence base used to deliver a long-term solution to building a resilient national capability.

8.4 There are a number of potential routes for the long-term model, including:

- increased centralisation and intervention through the existing system, building on Phase Two;
- development of centralised laboratory capability for all food and feed testing; or
- increased centralisation and funding of non-routine specialist testing for novel and challenging analysis, building upon the existing system

8.5 The FSA will seek to deliver Phase 3 in conjunction with wider key stakeholders. The analytical requirements needed for food standards testing are not unique needs for the FSA. Indeed, other government departments require similar testing capabilities and face similar challenges. The FSA is in dialogue with the Department for Environment Farming and Rural Affairs (Defra) and Department for Business, Energy & Industrial Strategy (BEIS) to understand where we can deliver joint ways of working approach on mutual capability gaps.

8.6 Discussions are under-way with the Government Chief Scientific Advisor (CSA) and the CSA Network to explore a how this would fit into wider cross-government laboratory capability.

8.7 The FSA will continue to work with other government departments to push for the creation of a resilient public laboratory capability for government, which can provide high quality testing capability, including during large-scale incidents.

8.8 Over the next 2 years the FSA will review and evaluate the implementation of Phase 2 and develop the evidence base and proposed future model for Phase Three.

9. Conclusion

9.1 In summary, the decline of local authority sampling has placed the PA OL network in a precarious position with multiple laboratory closures already occurring in the last few years. The increased difficulty in directing samples to EU laboratories has increased the importance in ensuring there is a full capability inside the PA OLs in England and Wales.

9.2 A recommended approach has been developed that will support PA OLs in bolstering their capabilities, empower NRLs to analyse novel and difficult samples, and will support the training of the next generation of PAs. This will boost the resilience of the PA OL and ensure its long-term sustainability.

9.3 The Board is asked to:

- **Note** the work undertaken to date; and
- **agree** the proposed short to mid-term (Phase Two) approach to supporting a UK food and feed official laboratory system
- **provide feedback** on the long-term approach (Phase Three)

Annex 1: Local Food Authority Survey findings

In February 2022, A survey was disseminated to local authorities in England and Wales on their experiences engaging with Public Analysts. Thirty-six responses were gathered; however, some responses were a combined response from multiple local authorities. Local authorities were asked for comments on what they currently sample and associated costs. They were also asked to highlight areas where they wanted to take samples but were constrained by the cost or lack of availability.

The responses made it clear that food authorities are restricted by budget and resource. Most samples taken were limited to allergens and meat/fish speciation. These tests are also some of the lowest-cost tests reported by the authorities that responded to the survey with allergen testing usually priced between £100 to £150 plus VAT and delivery costs. Meat speciation testing reported costed in the £150 to £200 mark plus VAT and delivery costs.

Over 80% of responses indicated some issues that resulted in delays. The most common reasons for delays were COVID-19 issues due to courier collection and delivery and delays due to sending samples abroad.

Speciation analysis was given as the sampling area local authorities wish they could take more samples of. This covers DNA analysis and particularly analysis for novel foods and meats. Contamination, particularly mycotoxins in cereals and herbs and spices were also a common example given as an area local authorities wanted greater availability to test. A follow-up survey of the authorities will be commissioned in due course to monitor any changes to local authority sampling and where capability gaps most need to be filled.

Annex 2: Pillars of a resilient PA OL system

Pillar of resilience	Definition
Capability and Capacity	Capability is defined as the ability of the PA OL system to reliably and affordably test across the chemical, compositional and authenticity regulations. A full capability is where all needed testing can be covered by a PA OL or NRL from within the UK. Capacity is defined as the ability of the PA OL system to meet enforcement sampling demands for business-as-usual work but also in the event of an incident. Success is defined as the system being able to surge in capacity between PA OLs and NRLs to address a potential incident.
Future Proofing	Future proofing is defined as the ability of PA OLs to maintain a modern capability. This includes hardware but also modern methods that are developed. Success is achieved if a PA OL can maintain a modern set of equipment and can be accredited for new methods to maintain and expand on their capability.

Pillar of resilience	Definition
NRL Support	NRL support is defined as bolstering the function of the NRL by ensuring they can provide additional sampling capability where needed. Method development capabilities will also be improved with a focus on developing methods that can be readily introduced onto the equipment commonly used in PA OLs.
Upskilling	Upskilling is defined as the ability of the PA OL system to effectively implement new methods and train analysts on using them and any new equipment. It also refers to securing the PA profession through training new PAs and maintaining the existing set of PAs.
Co-ordination	Co-ordination is defined two-fold: PA OL co-ordination and cross-departmental co-ordination. PA OL co-ordination is defined as the ability of the PA OL system (including NRLs) to effectively work together to analyse samples in a cost effective and efficient manner. A national capability is not fully reliant on a single PA OL, nor is there redundant capability being repeated across multiple PA OLs. Cross-departmental co-ordination notes that the requirements for a food safety and standards capability is not dissimilar to the capability required by other government departments. A successful system will deliver benefits across government, especially when a long-term solution is developed.

Annex 3: PA OL survey findings

A survey was sent to the 5 PA OLs in England and Wales by the Government Chemist in order to understand the state of the current system.

This following areas were flagged by PA OLs as having limited or no testing capability within the GB system:

- GMO testing. No GB OL has the ability to test, and all analysis is sent to laboratories within the EU
- Limited use of general screening methods for unknowns in food, analysis tends to be targeted, meaning that potential risks could be missed
- Alternative methods to ELISA, for example DNA (analysis, for allergens testing to enable confirmatory testing).
- Veterinary residue testing, which is all sent to laboratories outside the main PA OL system.
- Isotope ratio analysis for meat authenticity
- Geographical analysis
- Pesticide testing
- Food supplements
- Rapid screening approaches for adulteration of herbs and spices
- Food contact material testing

In addition to the above capability gaps, OLs flagged the age demographic of Public Analysts and the need to support and fund future Public Analysts.

Annex 4: Case study of the Forensic Science Service

In 2010, The Home Office announced that The Forensic Science Service (FSS) would be wound down over a two-year period. The FSS officially closed in 2012. The closure was motivated by the financial difficulties faced by the FSS with the Home Office stating that the service was losing £2M a month of taxpayer funds. Subsequent reports from the House of Commons Science and Technology Committee and its counterpart in the House of Lords found significant failings in the offloading of this service to the private sector and individual police forces.

Since the closure of the FSS in 2012, more testing is carried out “in-house” within police forces with 80% of forensic law enforcement work carried out in-house. Due to spending cuts to police forces, cuts have been seen in the investment in these in-house services. Police spend on forensic services was estimated to be £120M in 2008 down to around £50M in 2019. The total police budget in 2018/2019 was £12.3 billion.

An assumption that private industry could reliably take up the 60% of forensic services provided by FSS was proved demonstrably false. One large company, Key Forensic Services (KFS), went into administration and another, Randox, suspended providing toxicology services due to allegations of alleged data manipulation. This increased turnaround times and delayed trials. KFS had a higher error-rate post administration with mistakes becoming more commonplace.

The procurement picture for forensic sciences is broadly similar to that of the food and feed testing and it if feasible that food and feed testing could end up in a similar position. For official controls testing, local authorities appoint a PA through a tendering process and then end up sending samples to the PA OL on a commodity basis. This has forced providers into a competitive landscape, and this has led to the closure of many PA OLs over the last few decades. Now a single private supplier accounts for most testing in England and Wales. Just like police forces, local authorities have seen their budgets fall year-on-year. This means they have less money to dedicate to taking enforcement samples. This has been exacerbated by the removal of the FSA's national coordinated sampling programme. This means local authorities are more likely to focus sampling efforts narrowly on cheaper tests that target known issues. As such, many of the analyses required to fulfil our chemical and compositional regulatory requirements are simply commercially unviable. This means that the PA OLs struggle to afford the accreditation and running costs for these methods and are driven to stop offering them.

Annex 5: Resilient PA OL System Deliverables

To deliver the recommended model, we have identified four key workstreams:

- Targeted capability funding: The FSA will review the capability gaps within the system, identified through the Government Chemist and internal expertise. PA OLs will be invited to bid on how they could build capability in these areas. The FSA would review its evidence base and run an open competition to PA OLs for specific capability elements. Contracts will specify capability built must be based within the UK, in order to ensure funding builds resilience in the UK system
- Open capability funding: This is a discretionary funding pot. Funds will be set aside for laboratories to submit business cases for grant funding to build additional capability outside of the targeted capability fund. This will allow for greater flexibility for laboratories to meet emerging challenges that they face on an individual basis
- National Reference Laboratory capability: We will build upon the National Reference Laboratory capability, which the FSA already has contracts in place for. This will be used to ensure that they have the capability to test novel and complex samples, can be kept cutting-edge, and increase testing resilience in the event of food incidents. We will also increase research and development undertaken by the NRLs, to replace that undertaken by the EU Reference Laboratories
- Building the Public Analyst Profession: This funding will increase support to the training of new Public Analysts, ensuring that laboratories have a succession plan in place and guaranteeing the future of the profession

For each workstream, there will be strong governance and KPIs in place, to ensure that this funding delivers the pillars of resilience in Annex 2.