Russia's Track and Trace System for Alcohol Goes from Strength to Strength

The Russian track and trace system for alcohol products has undergone significant upgrade and expansion since its introduction in 2006, including upgrades made to the tax stamps used to carry the data for the system.

The system is called *EGAIS* (which, in English, stands for *Unified State Automated Information System*) and its mission is to track the production volumes and turnover of all alcohol products – including beer – sold on the Russian market, as well as to store detailed information on the production and movement of ethyl alcohol and alcohol-containing products.

EGAIS is one of the world's first examples of a true alcohol track and trace system (in fact it is difficult to think of what other systems exist that are similar to EGAIS). It is provided and operated by the state-owned developer Center-Inform, which specialises in digital and crypto-based technologies and secure government communications (and which provided *Tax Stamp News*™ with the information for this case study).

Although initially designed for the manufacturing and wholesale sectors, in 2016, EGAIS expanded its coverage into distribution and retail, which meant that products could, from that point on, be monitored up to their sale to the consumer.

Today, more than 30,000 organisations and individual operators participate in the EGAIS system. This includes 400 production sites, over 1,800 distributors and over 225,000 retail organisations. And more than 4,500 tax officers and other authorised personnel currently receive and process information from the EGAIS system.

The organisations participating in the system (which essentially comprise all compliant alcohol operators in the country – since any organisation doing business outside of the system would be deemed illicit) are required to obtain electronic confirmation from EGAIS of the manufacture, shipment and sale of each individual product they deal with. These organisations also include foreign manufacturers (and importers), which are equally obliged to use tax stamps with EGAIS unique identifiers to mark alcohol products imported into the Russian Federation.

Track and trace at retail level

In order to perform their tracking obligations, retailers are equipped with special software installed at point-of-sale (POS) tills and computers to register every product received from manufacturers, distributors or importers. The registered data is then compared with corresponding producer, importer and distributor data, in order to detect any discrepancies.

The system also obliges the retailer to scan each individual EGAIS barcode on the tax stamp of products sold to the final consumer (in fact, the normal linear barcode on the product label, when scanned, automatically recognises the product as alcohol, and won't allow a purchase receipt to be generated until the EGAIS code is likewise scanned). The scanning of the EGAIS code is carried out with a 2D scanner connected to the till.

Once the EGAIS code has been read and confirmed, a final receipt is generated and the purchase data is registered in the system and sent to the central database. However, if the code is not confirmed, or if data discrepancies are identified, the retailer won't be able to sell the product.

The purchase receipt, itself, carries yet another code – this time a QR code which customers can scan with their mobile phones to check the validity of the purchase.

The tracking software is secured with digital signatures and has no graphical interface (given that its function is purely one of data exchange). The software is provided to retailers free of charge, along with automatic updates.

A total of 9 billion electronic documents were generated by the system in 2016, most of them in the form of electronic checks (which are documents generated at the moment of sale, containing the same information as the purchase receipt) from 700,000 retail POS terminals. In fact, 98% of all retail sales are verified at POS terminals.

Mobile app

Customers now have access to a mobile application called *Anti-Counterfeit ALCO*, which provides them with essential data on the origin and authenticity of alcohol beverages, as well as information such as the places where legal alcohol products are available for purchase. As at the end of 2018, more than 1.3 million users of the mobile app were registered in the EGAIS portal.

The customer can also submit a complaint about a particular vendor or the quality of a particular product. 2,000 complaints were received in 2017, 300 of which were confirmed and processed.

Also in 2017, 23 million units of counterfeit alcoholic beverages were detected and prevented from being sold at retail outlets, compared to more than 20 million units in 2018.

New tax stamps

In 2018, the accounting of every alcohol product unit was introduced together with new 'special federal' (FSM) stamps for domestic products and so-called 'AM' stamps for imports.

Before 2018, EGAIS had been monitoring each individual bottle only at the moment of production and the moment of sale to the consumer, with wholesalers only transferring batch level data into the system. Since 2018, however, EGAIS has been carrying data on every bottle of alcohol at every point in the supply chain.

A total of 39 new FSM and 18 AM stamps were introduced in 2018, including for vodka and different categories of spirits, wine and cognac (beer products do not carry tax stamps and beer producers instead transmit product information to EGAIS through automatic measuring and metering devices). The wide variety of tax stamps is justified by various excise rates for different types of alcohol, as well as a wide assortment of packaging containers for different products.
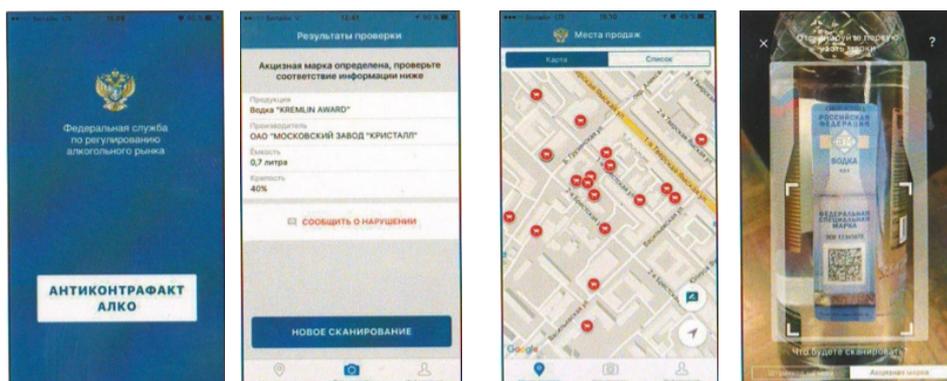
EGAIS mobile application.

The tax stamps are supplied by Goznak. They are printed on self-adhesive paper and incorporate a security thread (which is uncommon for tax stamps) as well as a holographic stripe. The paper is kiss-cut in order to prevent removal and reuse.

New FSM stamps for vodka: a 90mm x 36mm stamp for 0.5 litre bottles (top) and a 63mm x 21mm stamp for 0.1 litre bottles.

The stamps are printed with a blank space reserved for a datamatrix barcode containing a unique identifier (or EGAIS identifier, as it is called).

The EGAIS identifier in more detail

The EGAIS identifier includes a unique combination of 150 letters and numbers, which comprise the tax stamp type (three symbols), tax stamp series (three symbols), tax stamp number (eight symbols), internal, service information related to the EGAIS system (seven symbols), a checksum and an electronic signature (129 symbols).

The identifier is generated by the Federal Service for Alcohol Market Regulation, an executive body under Russia's Ministry of Finance, responsible for developing and implementing government policy and legal regulation on alcohol products.

The generated code is then transmitted to Goznak, which prints the code onto the tax stamps, ready for delivery to the manufacturers.

The stamps are subsequently applied to individual products by automatic applicators installed on the beverage bottling lines, and the identifier on the stamp is scanned and linked with its associated bottle by means of special software.

The new datamatrix barcode containing the EGAIS identifier is significantly different from the code (or rather codes) used on the previous tax stamps. First of all, it is one code, compared to the two codes used previously. The images on this page show how these old codes looked compared to the new one, basically taking up more than 50% of the surface of the stamps. They included a smaller datamatrix code, which was not actually part of the EGAIS system and only contained data relating to the tax stamp itself. This code was applied to the stamps at the moment they were printed and before they reached the manufacturer.

The EGAIS code, on the other hand, took the form of a massively long PDF417 code, which was printed onto the stamp by the manufacturer during the production process. This code contained a lot of the production and distribution information only known at the time the products were being manufactured, so it couldn't be printed at the same time as the stamps. The PDF417 code also contained the same tax stamp information found in the datamatrix code.

With regard to the new tax stamps, however, the two previous codes have been merged into one large datamatrix, which takes up much less space on the stamps. Furthermore, the code, by the fact of being printed and applied to the stamp by a centralised security printer – as opposed to each manufacturer printing its own codes – is better protected against mechanical damage, thus providing better readability than the PDF417 code.

The information actually contained in the new code, however, only pertains to tax stamp data – given that the code is generated and printed before the stamp can be associated with a particular item. The production and distribution data for track and trace purposes is subsequently generated in the EGAIS database and linked to the identifier during the production process.

Manual and automatic aggregation

There then follows a process of packaging aggregation (which is a clear necessity for ensuring a smooth-running and time-saving track and trace system), which can be performed manually or automatically.

Manual aggregation is carried out by personnel using barcode scanners, and involves the use of thermal transfer printers, controlled by special software, to produce labels for the group packaging.

With automatic aggregation, special stickers containing the datamatrix code with the EGAIS identifier are applied onto the bottle caps (in addition to the tax stamps). These stickers are later scanned and linked with the EGAIS identifier on the stamp. During the aggregation and group packaging process, the datamatrix codes on the bottle caps are read by automatic scanners and used to print group labels.

Impressive results

Since expanding its reach both in terms of markets (ie. by incorporating beer products) and in terms of supply chain operators (ie. by expanding into distribution and retail), the EGAIS system has produced some impressive results with regard to increased excise revenues.

For example, in 2016/17, the expansion resulted in a total excise gain of RUB 148 billion ($2.15 billion) compared to the previous year. More details of these results are shown in the table below.

Bottle of vodka with new FSM tax stamp (top), compared to previous stamp with two barcodes.

Excise tax collections (RUB billion)						
	2015	2016	Additionally received in 2016 compared to 2015	2017	Additionally received in 2017 compared to 2015	Additionally received in 2016-2017 compared to 2015
Alcohol products (total)	271.2	327.6	56.4	363	91.8	148.2
Including:						
Strong alcohol products (over 9%)	128.4	164.7	36.3	193	64.6	100.9
Wine products	8.9	10.2	1.3	15.6	6.7	8
Beer products	130.2	148.3	18.1	150.2	20	38.1

Results of alcohol excise tax collections under EGAIS system – 2015-2017 (provided by Center-Inform).

Uganda Revenue Authority Showcases its Science Lab *(continued)*

Without such investigations, these disparities would not have been discovered, and would have inevitably led to tax revenue losses (given that material composition and identity form the basis for assessing the tax payable on different classes of goods). Examples of goods which are tested in the URA's lab using this approach include rice, building tiles, crude oil and textiles.

So science indeed plays a central role in tax administration today, concludes the URA.

Technology and tax stamps

But it is not only science that Uganda is using to ensure tax compliance within its borders. The use of different types of technology is also high on its list of preferred measures to combat non-compliance – something which the country's president, Yoweri Museveni, also strongly endorses.

When speaking at the Science Model Workshop, President Museveni emphasised the need for the URA to install scanners – linked electronically to a central system – at each one of Uganda's 40 entry and exit points (and not just the two points that currently have them) in order to curb the smuggling and under-declaration of goods.

He also proposed the electronic monitoring and stamping of products at their factory of origin in order to minimise the under-declaration of taxes. Although Uganda already uses tax stamps on cigarettes, it is yet to expand them to other products such as alcohol. Plans are in place, however, for Uganda to implement, in 2019, what it calls 'digital' tax stamps on **all** excisable goods, including tobacco products, beer, spirits, wine and soft drinks.

Other products such as cosmetics, perfume, cement, sugar, chocolates and sweets are also subject to excise tax, but it is not clear whether these products will equally be required to carry tax stamps.

URA Acting Commissioner General, Patrick Mukiibi reiterated that, 'sometimes we need to interrogate the books beyond the financial statements,' adding 'the more the URA is empowered, the more likely it will discover any hidden income.'

He said that it was on this basis that the URA would be introducing tax stamps, with accompanying track and trace functionality. These stamps, together with the existing science lab facilities and the more traditional methods of financial and customs auditing

(and presumably combined with the necessary enforcement measures) will hopefully enable the URA to deliver on its revenue collection mandate – following several years of missed targets.

Whatever happens, 'URA continues to be a trendsetter and the science model is in character with URA's history of leading by example and embracing change,' said Logan Wort, Executive Secretary of the ATAF.

Uganda's President Yoweri Museveni at the 1st Science Model Workshop in Revenue Administration.

Sponsors of Tax Stamp News

MSP MADRAS SECURITY PRINTERS PRIVATE LIMITED

SICPA

Events

Our printer Colyer Group is ISO:14001 certified for environmental standards, and also FSC Forestry certified – ensuring all our media comes from sustainable sources.

FSC **ISO 14001**