On the line

How aerial mapping of power lines is helping to keep the lights on

Home truths
What does policy-compliant really mean when deciding affordable home numbers?

The long and short
The Tenant Farmers Association case for longer Farm Business Tenancies

Filling the space
Enriching urban building information models with cadastral information

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## LAND JOURNAL

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We are ready to publish the work undertaken with CBRE on the relationship between housing design quality, placemaking quality, market attractiveness and commercial value. Seminars are due to take place in Newcastle, Manchester, Bristol, Nottingham, Bangor and Cardiff or Swansea over the spring and summer.

The work was based on a number of developments in south-east England, but we are keen to find other case studies in the UK. Thanks to Chris Crook of Kingsgate Property Consultants, who led the working party, Tony Mulhall, our members’ RICS Director, Chris Balch of Plymouth University, Stephen Hill of C20 Future Planners, Andrew Martinelli of Nottingham Trent University, Stephen McKenna of AMEC, consultant John Tracey-White, and CBRE consultants and lead authors Helen Gray, Jasper Tracey-White, and CBE consultants McKenna of AMEC, consultant John Tracey-White, and CBRE consultants and lead authors Helen Gray, Jasper Tracey-White, and CBE consultants.

Meanwhile, it is worrying that a relatively large number of prospective planning and development surveyors who enrol for the APC don’t go on to completion. The route appears to have become less popular as a degree award than the more general real estate management degree. It would therefore be good if practising planning and development surveyors could offer a couple of guest lectures to any nearby university that make the award. It would also count for your CPD.

Relevant universities include Oxford Brookes, University College London, Queen’s University Belfast, Northumbria, Nottingham Trent, Westminster, UWE, Heriot-Watt, Reading, Cardiff, South Bank, Glasgow, Brighton and Manchester. For more information, contact me on paul.collins@ntu.ac.uk or call 07887 874 922.

The board also strongly supports the International Land Measurement Standard (ILMS) process and its development. The ILMS coalition is 15-strong and has been engaging with adopters of the eventual standard. Meetings, working groups and involvement in global conferences, such as the World Bank Land and Poverty Conference in Washington DC and the International Federation of Surveyors (FIG) Working Week in New Zealand, are helping bring professional surveying bodies closer together and also key adopters such as Deloitte, PWC and Thomson Reuters.

Land development aid bodies USAID, the Department for International Development, the World Bank, UN Habitat and the UN Food and Agriculture Organisation (FAO) are also involved. FAO is keen to host the ILMS coalition inaugural meeting in June.
The spring conference is on 14 April at Eastwood Hall, Nottingham. Valerie Fogleman, consultant to Stevens & Bolton LLP, will deal with an environment legal update and case law while Charles Cowap, principal lecturer, Harper Adams University, will present his thoughts on the valuation of ecosystems.

Tim Paul, managing director, SLR consulting Ireland, will discuss planning issues at Kilroot Salt Mine. Ken Hobden, director of mineral planning, MPA, is going to cover how to ensure the sustainability of minerals, the national planning policy framework and mineral safeguarding areas, offering his own outlook for the sector.

Finally, Richard Lashmore, partner, Knights, will examine the interface with surface development, the ownership of void space, manorial rights after 2013 and fracking and the infrastructure act 2015.

The feedback from the global consultation for the Mineral-bearing Land and waste management sites guidance note has been incorporated and we hope to have this published for the conference. To book, please visit www.rics.org/envandresources.

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Recent content sought has included carpet beetles, goodwill valuations, BiM and cost management. Most articles can be viewed as a pdf, read online, or saved and printed. Log on as a member to www.rics.org/ejournals.

Land value

The net worth of the UK agricultural industry was estimated by the Department for Environment, Food and Rural Affairs at £277bn in 2014, 5.9% higher than 2013. This was largely driven by an increase in the estimate of land values.
Home truths

Tony Mulhall examines what ‘policy-compliant’ means when deciding affordable home numbers

In a recent planning appeal decision, policy compliance on affordable housing delivery proved to be a central issue. Against a local authority’s strategic target for 50% affordable housing, the Planning Inspectorate determined 14% as complying with policy. It also accepted that the price paid for the site could be taken into account when assessing site value.

Parkhurst Road Ltd sought planning permission for residential development on a 0.58ha former Ministry of Defence (MoD) site at 65–69 Parkhurst Road, London N7, in a built-up area of Islington. The site was bought following a public tender exercise by the MoD, attracting 26 bids. The final planning submission proposed 112 dwellings, but the application was refused by the London Borough of Islington on three grounds, including inadequate affordable housing provision. The key decision for the inspector was “whether the proposal complied with policy objectives relating to the provision of affordable housing”.

At the outset, the inspector recognised that there was a “substantial unmet need for affordable housing both in London and in Islington”, but added that “while 50% is the strategic target, any level below this could be in accordance with the plan, providing it is shown to be the maximum reasonable amount”. Paraphrasing the National Planning Policy Framework (NPPF), he said that “to ensure viability the costs of any requirements likely to be applied to development, such as affordable housing … should, when taking account of the normal cost of development and mitigation, provide competitive returns to a willing landowner and willing developer”. Referring to the national Planning Practice Guidance (PPG), he continued: “where the viability of a development is in question, local planning authorities should look to be flexible in applying policy requirements wherever possible”. He added: “the PPG further identifies that the assessment of land or site value is central to the consideration of viability and will be an important input into the assessment”. Drawing again on the PPG, he noted that in all cases land or site value should:

- reflect policy requirements and planning obligations and, where applicable, any Community Infrastructure Levy (CIL) charge
provide a competitive return to willing developers and landowners

be informed by comparable, market-based evidence wherever possible; where transacted bids are significantly above the market norm, they should not be used in this exercise.

Comparable evidence
Table 1 shows the various valuation figures submitted by the parties, ranging from the notional existing use value of £750,000 to the winning tender of £13.25m. The question was which of these figures should be the relevant land value benchmark for assessing viability, and therefore for the level of affordable housing necessary to comply with policy.

The appellant argued that the site value of £13.26m – in accordance with RICS guidance – was the relevant land value figure to be entered into the development viability appraisal as a fixed acquisition cost. The council disagreed, arguing that the site value adopted and also price paid, was an overpayment that did not fully factor in the need for 50% affordable housing.

The local authority carried out a number of residual valuation calculations based on the proposed scheme at different levels of affordable housing of 50%, 40% and 32%. The calculations gave a residual land value of £4.98m, £7.32m and £9.35m respectively.

Critically, the inspector said that the council had not put forward any market-based evidence of the kind that the PPG indicates is important. In contrast, the appellant had the following evidence to support the £13.26m figure.

First, the MoD was bound by a statutory requirement to obtain the “best consideration”. The under-bid was only 2% lower and was made by a registered provider. It was not contested that such a purchaser could be assumed to have reasonable knowledge of the local market and be unwilling to overpay for the land. A number of bids were received within 13% of the winning bid, suggesting that the winner was not out of line.

Second, the site was the subject of an unsolicited and unconditional offer of £15.75m in May 2015 by one of the unsuccessful bidders, a major housebuilder. Third, the site was independently valued the same month at a figure of £15.5m.

Finally, the appellant carried out an assessment of comparable evidence based on 21 larger residential development land sales in Islington since 2010. These placed the price paid for the appeal site at the lower end of the range.

A subset of seven sites, mainly those without planning permission at the time of the transaction, generated a comparable range in value for the appeal site of £12.98m–£16.44m. One of the comparables was located in the neighbouring borough of Camden, which has similar affordable housing policies: a 0.27ha site sold by the local authority in 2014 for £11.2m. This was granted planning permission by Camden, based on a proposal offering 22% affordable housing against a policy target of 50%. The borough was also bound by “best consideration” requirements.

Inspector’s observations
The inspector commented that the appellant’s evidence showed that the price paid for the site was not significantly above the market norm. There was no counter-evidence. The council pointed to the PPG’s statement that land or site value should reflect policy requirements as well as planning obligations and CIL. The inspector regarded this as consistent with the special assumption approach of

<table>
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<td>London Borough of Islington notional existing use value</td>
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Development plans are full of broad statements of policy, many of which may be mutually irreconcilable

The inspector emphasised the need to take account of market signals, and concluded that the only information on these supported the use of the appellant’s land value figure. He concluded that the evidence did not suggest that a reasonable landowner would have an incentive to release the land for development at the value suggested by the council.

The inspector found that the appellant’s land value figure of £13.26m reflected policy requirements to achieve the maximum reasonable rather than the maximum possible amount of affordable housing. He did conclude that the delivery of 14% affordable housing would comply with policy, but also provided for a pre-implementation review mechanism.

The inspector, however, dismissed the appeal on amenity and other environmental grounds.

Judicial review
Islington started proceedings for a judicial review of the appeal decision. In its “letter before claim”, it argued that the decision would have “significant implications for affordable housing provision within London and beyond”. It was concerned

that the appellant would rely on the inspector’s reasoning in a re-submission. It could also be used by other developers to justify affordable housing levels well below the 50% strategic target, drawing on land transactions that do not reflect development plan policies.

It argued that the inspector addressed the wrong issue by seeking to establish whether the price was sufficiently above the market norm to be an overpayment, when he should have been identifying whether the land value had “reflected policy requirements”, particularly on a relatively unencumbered site.

Specifically, the council asserted that the inspector:

1. failed to understand and/or give lawful effect to the PPG requirement that site value should reflect policy requirements in all cases
2. divorced the concept of securing a competitive return from the policy requirements that affordable housing should be maximised as a requirement of the development plan, and the NPPF
3. unlawfully undermined the plan-led system contrary to the statutory scheme
4. proceeded on flawed logic by basing site value on market evidence without taking proper steps to ensure that it reflected policy requirements.

Government response
The government’s legal department rejected a judicial review. It said the council was not a “person aggrieved” because the inspector had dismissed the appeal on other grounds. This would result in a hypothetical case being presented that the High Court would not entertain. The case did not meet the “exceptional circumstances” test necessary for special treatment; besides, there were many other avenues open to the planning authority in taking decisions on future proposals. The council discontinued the judicial review.

The government’s response also addressed the issue of “reflecting policy requirements” but chose not to go beyond the content of the PPG. It said the Secretary of State had given such guidance as he considers appropriate in his PPG, which states, among other things, that land value should “in all cases... reflect policy requirements”. It added that any necessary working out of its consequences should proceed on a case-by-case basis.

The government response also referred to a leading case where a judge stated that, in principle, interpretation of planning policy is a question of law. He did point out, though, that policy statements should not be construed as if they were statutory or contractual provisions. “Although a development plan has a legal status and legal effects, it is not analogous in its nature or purpose to a statute or a contract... Development plans are full of broad statements of policy, many of which may be mutually irreconcilable, so that in a particular case one must give way to another. In addition, many of the provisions of development plans are framed in language whose application to a given set of facts requires the exercise of judgement”.

Conclusion
This appeal reveals the tensions in the planning system between the need to satisfy policy objectives and achieving them through specific development proposals. Overriding national policies emphasise the need for plans to be deliverable, but being “deliverable” in a market economy requires maintaining the business case for development, which comes down to a question of viability in each case.

Planning appeal decisions do not set precedents. In accordance with the government lawyer’s rebuttal, the application of policy should “proceed on a case-by-case basis in practice”. The inspector’s application of policy proceeded on the basis of taking the headline affordable housing target and moderating it by reference to other material considerations, to arrive at a level which he judged to be deliverable at the time.

The content for this article is mainly drawn from the inspector’s report, the local planning authority’s letter before claim and the response of the government legal department to that letter.

Tony Mulhall is Associate Director, RICS Professional Groups and Forums tmulhall@rics.org

Related competencies include Development Appraisal; Planning; Valuation
Can neighbourhood plans be overturned?

Alex Ground looks at a range of challenges to neighbourhood plans

Neighbourhood plans were envisaged as providing communities with power over the location of new housing, shops and offices. However, they are facing an increasing number of legal challenges as communities endeavour to use them to resist speculative development, in the absence of a five-year housing land supply and the National Planning Policy Framework (NPPF)’s presumption in favour of sustainable development.

A number of judicial review challenges have been made by developers to neighbourhood plans that have been adopted. This article looks at a range of these challenges. Where they failed, the neighbourhood plan became the main reason for the refusal of a planning application.

Premature plans

A couple of challenges have been made on the grounds of neighbourhood plans’ prematurity. Tattenhall Neighbourhood Plan was judicially reviewed on the basis that it brought forward policies before the local plan had been examined and adopted. It was concluded that, while a local plan must be consistent with national policy, neighbourhood plans just need to meet basic conditions, and the examiner has the discretion to determine whether or not it should proceed, having regard to national policy and guidance.

Larkfleet Homes Ltd, meanwhile, sought a judicial review of Rutland County Council’s decision to allow Uppingham Neighbourhood Plan to proceed to referendum, asserting that a site allocation policy could only be prepared as a local development plan document by the authority. However, it was concluded that neighbourhood plans are able to allocate sites for development.

Another neighbourhood plan, for the parish of Slaugham in West Sussex, was, in the first instance, successfully challenged by a developer as it was held not to meet the basic conditions on the strength of a flawed strategic environment assessment (SEA), which did not comply with EU requirements.

Three site allocations were also identified as not necessarily deliverable. If there is a procedural error in relation to SEA or site deliverability, representations may be made to ensure that it is not approved, or to challenge if it is.

However, once these points were rectified, the developer failed in its second challenge, on the grounds that there was a housing allocation shortfall in the wider district, a conflict with national planning policies and a flawed scoring system; the court held that there was sufficient housing land allocation to satisfy the draft local plan provision and rejected the other grounds as without merit. This demonstrates that it is very difficult to challenge a neighbourhood plan successfully on anything other than procedural irregularities.

However, focusing resources on an actual application and any subsequent appeal may be more likely to succeed, given some recent appeal decisions. Permission for 120 units in Mid Sussex was refused in September 2014 by the Secretary of State for Communities and Local Government on the basis that they conflicted with a draft neighbourhood plan. But this decision was later overturned in a High Court challenge, and the re-determination is currently awaited.

Last November, developers took further hope when the Secretary of State recovered an appeal for 39 homes in Northamptonshire (appeal ref. 2221102) and granted it on the basis that, while the proposal conflicted with the draft neighbourhood plan – the site was outside the limits of development and not allocated – this was insufficient to outweigh the lack of a five-year housing land supply.

In January, the Secretary of State also approved 110 units in Ringmer, East Sussex (appeal ref. 3001077), where the draft neighbourhood plan had allocated the site for fewer units.

Developers are advised to seek sites where no neighbourhood plan has been started, or to try to get allocated in a plan. But you should not underestimate how quickly some neighbourhood plans have been prepared, and this can change the risk profile of an application considerably.

Failing that, making robust objections to a draft neighbourhood plan while trying to push through your application may also lead to a grant of permission, provided all other technical aspects of the application are satisfied. Alex acted for Woodcock Holdings in Woodcock Holdings v Secretary of State for Communities and Local Government [2015]

Alex Ground is Partner at Russell-Cooke alex.ground@russell-cooke.co.uk

Related competencies include Planning; Legal/regulatory compliance; Housing Strategy and provision
Chris Kendall claims that a new national website will revolutionise the relationship between councils and their customers in development

Mind the gap

I

Idox, a supplier of specialist information management solutions and services, has responded to the government’s drive for innovation in the planning and development sector by launching IApply, the first UK website to provide a single access point for local government transactions. As 80% of local authorities in the UK already use Idox systems to manage planning and building control applications, the company chose to go live with the service for the development sector in December.

The IApply software is designed for businesses and residents involved in building and development making the application process more efficient by streamlining and standardising forms and interactions. Unlike the Planning Portal – the former government service privatised by the Department for Communities and Local Government (DCLG) in 2015, which deals solely with planning – IApply co-locates planning and building. This brings building control in line with planning, which has long been digitally enabled.

Idox contends that IApply is much more than an alternative to existing services. Not only does it break down barriers between applicant and authority, but it enables the management of information across the lifetime of a project with tracking, project management and collaboration tools that are unavailable elsewhere.

Phone or mobile

The facility allows applicants to see behind the scenes at local authorities as their applications progress. In a digital age, where customers expect to be able to track consignments around the world by phone or mobile device, it is perhaps surprising that this is not possible for locally managed applications. Therefore, IApply enables applicants to submit planning and building applications and then follow their progress at local authorities, in real time and from a single dashboard.

This obviates the need for businesses to visit and monitor the websites of every council to which they have applied, or spend time and resources chasing each individual application by phone. This offers significant benefits for any business that is managing multiple applications across a number of local authorities at the same time, and provides opportunities for improved and more timely management of pipelines and resources.

It is easy to imagine how a national housebuilder or outdoor media company, for example, might have dozens of applications in progress at any one time. Until now, each would be time-critical and require an individual resource to track. The service also enables applicants and their colleagues and/or clients to receive automatic notifications as changes occur in local authority case management systems, whether these are changes in status or simply the receipt of consultations.

With the twin challenges of an ever-increasing squeeze on local authority resources and a national drive to build new homes, the need for efficient solutions that smooth the development process has never been greater. Many local authorities have already welcomed the introduction of IApply, recognising its potential for substantial time savings that can free resources for more productive work. In its first week of operation more than 100 authorities took up the service.

Andrew Riley, Idox’s Chief Operating Officer, said: “IApply is different to anything else on the market, moving towards unrestricted file sizes, improved validation and transparency, access to submission details and enhanced application tracking and notification. We haven’t just simplified the planning process, but changed the way applicants and local authorities interact.”

Beyond the immediate benefits for businesses and local authorities, this facility can act as the foundation for the first national planning register, by offering a search tool that automatically scans every local authority planning application database and offers up location or text-based results instantly on a map. Each database record is linked to the council’s site for further information. Every result can also be readily posted on social media, enabling interested parties to share and discuss applications of interest.

The opportunities are many and varied. The facility can provide valuable tailored insights, whether you’re a concerned resident monitoring planning applications in your neighbourhood, a tradesman looking for sales leads or a minister demanding real-time information on
a particular aspect of development activity.

Idox believes that iApply can close the gap between local government and its customers in the same way that gov.uk has for central government, particularly given that the most recent government spending review allocated £1.8bn in funding for the Government Digital Service to speed up the transformation of public services, but nothing to local government – much to the disappointment of the Local Government Association and everyone else in the digital sector of local authorities.

Idox’s plan for iApply is long-term and wide-ranging. Riley said: “Our diversity and depth of service provision to local authorities is an opportunity to create a platform that links seamlessly into an existing back-office network, without great upheaval or cost to local authorities. It is easy to see, for example, how the platform might develop to manage building information modelling inputs or public consultations, and further extend the ability of local authorities to engage with those who are in or affected by developments.”

Idox intends to extend the service to cover the transactions common to all local authorities. At present, it is some way towards this ambition. The next phase of the service offers a licensing module designed to build on Idox’s Lalpac service, which enables local authorities to manage the wealth of licences under their remit.

As with planning and building, the aim is to create standard forms for all licence types, beginning with the most numerous and commonplace, such as temporary event notices and premises licences, before extending the range further to include less usual examples – a licence to hypnotise, for example.

New opportunities for joining up services within and between local authorities are also being laid out, and expansion into utilities and other related sectors is being considered, where the interface between resident, business and local authority would benefit from greater transparency, standardisation and simplification.

Meanwhile, services to the development sector will be expanded and built on, in response to feedback from users and local authorities.

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Prosperous farming can be sustainable and help people live healthily, explains Caroline Drummond.

One thing we can be certain of is change. As we move into an era of increased volatility, managing risk is a key part of business development. However, the real challenge is to manage that risk over the long term to create a resilient and more sustainable business.

I know a lot about volatility. I manage a global farming charity, I’m married to a dairy farmer and I have a teenage daughter. Life with an adolescent is very similar to the volatility we face in the farming sector: we know that change is inevitable, but we never know when it’s going to hit, and when it does, we are unsure which strategy will minimise the impact most effectively. Then, when it has all blown over, it is as though it never happened!

As an industry we face the impact of more variable weather, alongside volatile market prices, a fragile political framework, a growing global population, an increasingly urban society that is unfamiliar with nature, the seasons, farming and its skills – all of which puts pressure on our global food system and brings huge challenges.

Furthermore, we see more people around the world adopting western diets – entailing an agricultural transformation that is having a significant impact on food demand patterns and exacerbates health problems and greenhouse gas emissions. But it is crucial that we bring nutrition and improved diets to the global population and improve people’s relationship with their food.

Obesity

Good nutrition provides our source of energy and our first defence against disease. But today, 66% of the UK’s adult population is obese or overweight. Treating obesity and its consequences costs the NHS £5.1bn every year.

By contrast, the UK spends only £638m on obesity prevention programmes. Ongoing cuts to public health budgets will put such services under further strain. It is essential that farming is part of the solution with fresh ideas and nutritious food. The agricultural sector is already investigating how plants can offer better nutrition by breeding soil management and other factors.

It is essential that we find realistic, practical and achievable solutions within a long-term vision. Many current policies are based on single issues and we need to seek a fully integrated approach to ensure healthy food, farming and people.

Our vision

At Linking Environment And Farming (LEAF), we address some of these challenges in a practical way through the promotion and demonstration of integrated farm management (IFM). Our vision is a world that farms, eats and lives sustainably by inspiring and enabling sustainable farming.

Sustainable farming delivers a site-specific farming system supporting the integration of the environment, society and economic viability over the long term, and aims for farms to be prosperous, enrich the environment and engage local communities. For us, IFM is the key.

IFM is geared towards sustaining and optimising the use of all resources on a farm, including soil, water, air, staff, machinery, capital, wildlife habitats and landscape features. The implementation of IFM is about adopting knowledge and innovation alongside beneficial husbandry principles and traditional methods. It uses a risk management approach to anticipate, assess, manage and develop contingencies for any unplanned or natural events.

Partnerships are essential in making changes. For LEAF, these include our members and farmers, who are actively leading the way in innovative and scientifically informed approaches. LEAF brings together groups from across the food and farming industry to define, measure and promote continuous improvement for agriculture.

These alliances include farmers, agribusinesses, retailers, conservation groups, researchers and public-sector partners, who together focus on defining, measuring and advancing food sustainability. LEAF has been at the forefront of developing sustainability solutions for 25 years.

Furthermore, we have some 40 demonstration farms and eight LEAF innovation centres, which share ideas, solutions and beneficial practices as well as new developments and technology. This creates a good platform for discussion between farmers, researchers and industry.

Building on their experiences and expertise, we have developed a series of management tools such as the LEAF sustainable farming review, guidelines, metrics and indicators to monitor and evaluate impact.

The drivers for change include increasing regulation, volatile weather patterns and customer requirements. These add to the need to ensure that...
One farmer’s story

Patrick Barker of EJ Barker and Sons is a LEAF demonstration farmer in Suffolk. He writes: For the past decade, our family ethos has been to farm our intensive arable farm in the most productive way possible, while at the same time benefitting the natural environment and our farmland wildlife.

The greatest strength of our environmental work is the unremarkableness of the farm. We do not have the natural features that make it stand out and would give us the off-the-chart species counts that you might find in a river estuary, a Site of Special Scientific Interest, wildflower meadows or ancient woodland. We just try to manage our part of the Suffolk landscape to maximise on yield, in terms of both crops and wildlife.

As we measure the success of our crops by yield, we can do the same for our farmland wildlife. Productivity of barn owls, butterflies, Great Crested Newts and wildflowers are all indicators of whether the environmental features that we are managing are working and producing successfully. If there is a drop in the number of one of these species, we look at the conditions of rough grassland, scrub and woodland coppice, ponds and wildflower meadows in the same way as we would review a growing season to see why a certain crop has yielded better than another.

I treat habitats like machinery. If you set them up correctly, keep them in full working order, manage them well and service regularly you will get the most back.

Summary

- The farm’s biodiversity is managed alongside productive farming as part of iFM.
- Conservation efforts focus on the Grey Partridge and the Great Crested Newt, but as the farm works towards these goals, many further species are benefitting.
- Wildlife management is approached, executed and evaluated in the same way as crop management.
- Despite having a farm that is unremarkable in terms of natural features, high levels of biodiversity are managed by making the most of what is available and using straightforward strategies.

Looking to the future

As an industry we need to work together to devise new approaches, strengthen the ones that work and create new income models for farmers and land managers, as well as communicating more effectively with our customers.

This year, LEAF marks its 25th anniversary. We will be celebrating and continuing to build on our core work to deliver healthy food and farming fit for the future.

Related competencies include Agriculture, Management of the Natural Environment and Landscape, Sustainability.
The long and short

George Dunn presents the Tenant Farmers Association case for longer Farm Business Tenancies

The Agricultural Tenancies Act 1995, which ushered in Farm Business Tenancies (FBTs), marked the comprehensive deregulation of the agricultural let sector. According to the free-market ethos of the time, almost complete freedom of contract was the best way to ensure the most efficient outcomes for UK agriculture. There were three main objectives for the legislation: to encourage more letting of agricultural land; to increase opportunities for new entrants; and to promote economic efficiency in agricultural land use.

The decline in let agricultural land reversed, with net gains until 2003. However, the past decade has been a time of fragile stasis. Much early success can be put down to the codification of informal agreements struck before 1995 attempting to avoid security of tenure.

The Central Association of Agricultural Valuers reports in its annual survey on agricultural land occupation for 2014 that around 5.5% of all lettings and 17% of those where there is a change in occupier are going to new entrants. It is difficult to judge whether or not these figures can be viewed as a success, but there is considerable unfulfilled demand for opportunities from new entrants. Even the 2002 University of Plymouth economic evaluation of the 1995 Act reported that new entrants felt excluded because of their inability to compete with established businesses. Proposed solutions included alternative fiscal and financial interventions.

The Tenant Farmers Association (TFA) argues that FBTs have failed to improve efficiency in UK agriculture. Farming is a long-term endeavour, requiring significant capital investment, patience, good soil management and the ability to balance the profitable years against the bad ones.

None of this is helped by the short terms offered in today’s FBTs. In the 20 years since the legislation was enacted, the length of term on an FBT has averaged under four years. Even so, why should the TFA argue for the government to intervene?

First, there is the matter of volatility. The past 10 years have seen larger and more unpredictable swings in agricultural markets than there have been for a generation. A resilient industry needs long-term security. The government has recognised this by extending the option of averaging tax from two to five years.

Second, there is much talk about long-term economic planning and the need for investment to create growth and drive productivity. What incentive is there to invest as a tenant farmer if your agreement is less than four years or continues on a rolling, year-to-year basis? Long-term security is needed for sustainable investment. and it is not just the TFA saying this. Writing in a recent issue of the TFA newsletter, Euryn Jones of HSBC said: “Longer-term agreements give tenants more confidence and motivation to invest in their business. “They are more likely to invest in livestock, machinery and buildings. There is also a stronger motivation to
undertake improvements such as fencing and reseeding – all of which enhance the quality of the farm and benefit both landlord and tenant.”

Third, the TFA believes that short-term farm tenancies are bad for soil management. The UN declared 2015 the International Year of Soils, and this coincided with warnings by UK scientists that we may only have 100 harvests left from our farmed soils. Landlords such as the Crown Estate are looking at how to weave soil indices into their tenancy agreements, to ensure that soil condition is a factor that farm tenants take into consideration – both when bidding for a farm and when the tenancy ends.

Soil management and improvement need long-term commitment, sustained action and significant investment. The TFA believes that those most likely to be up to that challenge are those with a long-term interest in the land they are managing. How often have we heard stories of individuals who have taken short-term agreements, leaving behind a soil depleted of nutrients, organic matter and structure?

Soil decline
With short-term FB Ts, it is little wonder that we are seeing instances of a decline in soil conditions. While the Crown Estate should be applauded for its focus on soils, the TFA believes that its proposed solution deals with the symptoms rather than the cause. To ensure that soils on farms are maintained in good condition, it would be better to grant longer-term tenancies with properly constructed schedules of soil condition.

We also need farmers to have the right framework to encourage the management of all environmental assets on land. Again, short-term interests lead to short-term thinking.

Finally, the government must have an eye to social objectives – there is little to be gained for families or communities from individuals operating within very short time horizons, particularly in rural areas.

The TFA argues that when landlords are reluctant to use the full flexibility of the statute but gain considerably from the new legislation and its tax changes, this represents a market failure. With much higher demand than supply, landlords can offer short terms for high rents at very little risk, and obtain 100% Agricultural Property Relief from inheritance tax. By contrast, the short-term nature of tenancies is preventing progression, investment and sustainable land use.

The TFA launched its year-long FBT10+ campaign in January 2015 both to highlight the issues and to argue for fiscal and legislative change. It is on the fiscal side that the TFA believes we are likely to see the biggest impact for a relatively small number of changes. The following ideas are being actively discussed between the TFA and the Treasury.

- Restricting the 100% relief from inheritance tax, currently available to all landlords regardless of the time that they are prepared to let land, to those prepared to let for 10 years or more.
- Clamping down on those landowners who are using share farming, contract farming, share partnerships and grazing licences as vehicles for aggressive tax avoidance, since in practice they take no risk, have no entrepreneurial input and lack any managerial control.
- Offering landlords prepared to let land for 10 years or more the ability to declare their income as if it were trading income for taxation purposes.
- Reforming stamp duty land tax to bring an end to the discrimination against longer tenancies.
- Requiring landlords over whom the government has influence (for example, the Crown Estate) to default to farm tenancies of 10 years or longer.

The TFA is also aware that some landlords, particularly institutions, are nervous about letting for long periods given the difficulties that can occur when attempting to bring a tenancy to an end if the tenant is in breach, chiefly for non-payment of rent.

The TFA would be prepared to see more practical provisions for handling breaches added to the legislation, to help deal with those circumstances in which landlords let for 10 years or more. Equally, where landlords gain opportunities for development, the TFA would be happy to see more practical provisions in longer-term lets for them to break tenancies, subject to tenants being compensated for the loss.

As a result of the FBT10+ campaign the TFA has learned some important lessons. Although there is evidence of abuse in contract farming arrangements and other forms of agreement, these do offer important points of entry into the industry for individuals who have little capital. The TFA will be considering how such individuals can be supported to ensure their long-term success.

Finally, a word about those advising landlords and estates on land occupation and management. The TFA believes that achieving the highest rent for the shortest term should not be the only consideration when advising a client or letting land on their behalf. Sustainable solutions for both parties and for the benefit of the wider economy must also play a major part.

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Related competencies include Tenancies – Agriculture, Landlord and Tenant

RICS view

RICS was approached by the TFA to support its FBT10+ campaign but declined. RICS believes that all parties should be free to contract tenancy term length on a case-by-case basis. RICS agrees there are a variety of considerations that should be taken into account when advising landowners letting land of which rent is only one consideration.

Previous dissertation research from two Harper Adams students published in the Land Journal (November/December 2013) looked at the relationship between tenancy length and soil condition. They concluded that it should be possible to include more specific requirements in written tenancy agreements to ensure longer-term soil health. The RICS Rural Policy Paper launched at the Oxford Farming Conference in January recommends that DEFRA’s 25-year Food and Farming Plan should include a successor to the good work done in the 2011 Safeguarding our Soils Strategy, that soil conservation measures should be made mandatory and reliance on cross-compliance should only be for additional support.
Alec Hales considers the responsibilities associated with reducing asbestos risk in soil on brownfield sites

Ground control

The detection of asbestos in soil is becoming a pivotal point in the redevelopment of brownfield sites and in contaminated land projects. However, for many developers and demolition and construction companies, the risks associated with asbestos in soil can sometimes be overlooked or underestimated at the desktop stage. Consequently, asbestos is commonly identified only during ground works or after demolition or redevelopment works begin.

The impact of not suitably reviewing, risk assessing and characterising a site for asbestos-containing materials (ACMs) might not only significantly increase a project’s duration and cost, but can also risk exposing site workers and local residents to such materials. This can lead to reporting of injuries, diseases and dangerous occurrences (RIDDOR) and Health and Safety Executive (HSE) involvement, as well as possible criminal prosecution and civil claims.

No safe exposure

Asbestos is a category 1 human carcinogen that was extensively used in construction materials before its use was banned in the UK in 1999.

Asbestos in made ground and soils is predominantly immobile, although when contaminated ground soils are disturbed, fibres are more likely to be released. These fibres may be inhaled and could potentially cause respiratory diseases. At present, there is no safe exposure threshold for humans, and the main risks are associated with breathing in asbestos fibres.

The Control of Asbestos Regulations require employers to assess any potential for their employees to be exposed to asbestos. Asbestos can find its way into made ground and soils in many different circumstances. These include the historic demolition of buildings containing ACMs, fly-tipped waste, earlier use of the site, and previously ineffective remediation of areas that may have been contaminated.

The following questions are useful to take into account when planning asbestos-related fieldwork.

- Are ACMs present at the ground surface?
- Is there a risk of any release of asbestos fibres into the air?
- Is there a risk of any such release exceeding the control limit for working with asbestos?
- What mitigation methods are appropriate to reduce potential risks?
- Has previous sampling and analysis been undertaken to determine whether asbestos is already present?

Asbestos fibre release from soil depends on multiple factors including:

- ACM type – loose fill, insulation, lagging, asbestos insulating board (AIB), cement and so on
- ACM condition – degraded, damaged or broken up
- Weather and underfoot conditions – wet, damp or dry, moisture content (by %)
- Possible erosion of ACMs at surface.

Very low concentrations of asbestos fibres may be present in soil and made ground, and these fibres may not be visible to the naked eye. Thorough analysis of soil therefore accurately quantifies any asbestos fibres present as a percentage of the overall mass, and this information can, in turn, be equated to occupational risk and the practices associated with its removal and disposal or re-use.

Control limits

The control limits in the Control of Asbestos Regulations 2012 stipulate that if the work generates less than 0.1 fibres/cm³ over four hours or 0.6 fibres/cm³ over 10 minutes (also referred to as STEL – short-term exposure limit) then it is non-licensed work. If these levels are exceeded, then the work becomes licensed, and the contractor must be an HSE Asbestos Licence holder. In addition, the type of ACM identified also dictates if work is licensed or non-licensed. In all situations the work must be carried out by suitably trained personnel and companies.

Control limits

To meet all regulatory requirements, and to ensure that the potential presence of asbestos in soils is assessed in the required manner, soil samples are assessed in a tiered process to identify whether asbestos is present (qualitative analysis), what composition (asbestos type determination) and in what quantity (quantitative analysis).

Prior to a site investigation, an initial site pick of ACMs at the surface may reduce the likelihood of asbestos fibres being disturbed. However, in order for a sampling strategy to enable adequate characterisation of a site for ACMs, soil samples sent for laboratory analysis should be targeted both horizontally and...
vertically, and, importantly, include visual assessment of excavated soil arisings.

**Borehole sampling**

Trial pit and borehole sampling are carried out through the made ground layer on a site or land area and 1kg (around a litre) of soil is sampled. Careful attention is given to the entire sample collection as well as to laboratory handling to avoid any spread of potential contamination. Trial pits and borehole locations in the site under consideration are properly reinstated.

This original soil sample is screened for visible asbestos products in the laboratory; if these prove to be present, they are weighed and analysed. Further analysis for asbestos fibres is undertaken, and these are also separated and weighed. Measured weights are then scaled back up to represent the entire sample quantity, and an overall percentage for asbestos content in the soil is worked out.

If asbestos products or fibres are not detected, further sedimentation analysis may be carried out if a client requests. This involves a sample of soil being dissolved in water and an aliquot passed through a filter. The filter is analysed using scanning electron microscopy (SEM) and energy-dispersive spectrometry (EDS). If fibres are found, then quantities are measured and scaled up to the original mass and an asbestos percentage content is reported.

Air monitoring analysis on a contaminated site is carried out using phase contrast microscopy (PCM). This is the UK standard method and analysis is in accordance with HSG248 *Asbestos: The analysts’ guide for sampling, analysis and clearance procedures*. The PCM must be carried out by a UK Accreditation Service (UKAS)-recognised laboratory testing may be appropriate, because it is able to achieve the higher sensitivity that is more appropriate to environmental monitoring.

The ‘wonder’ mineral of over 50 years ago, asbestos continues to leave a lasting legacy of considerable health risks. To minimise these, it is vital that all those who have a responsibility for managing asbestos or who could potentially come into contact with it during building works should have the correct knowledge, training and support to deal with this material safely.

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Related competencies include

Legal/regulatory compliance;
Management of the built environment

Properties (i.e. within the correct width/length range) consistent with those of respirable asbestos fibres. A PCM test does not, however, discriminate between asbestos and non-asbestos fibres, because all fibres fitting the correct criteria are counted; as such, other “background”, non-asbestos fibres are a possible component of the result. However, where there are known sources of interference fibres, such as organic machine-made mineral fibres, SEM UKAS-accredited laboratory testing may be appropriate, because it is able to achieve the higher sensitivity that is more appropriate to environmental monitoring.

The ‘wonder’ mineral of over 50 years ago, asbestos continues to leave a lasting legacy of considerable health risks. To minimise these, it is vital that all those who have a responsibility for managing asbestos or who could potentially come into contact with it during building works should have the correct knowledge, training and support to deal with this material safely.
A certain distribution network operator (DNO), one of the companies responsible for delivering electricity to our homes and businesses, there are three main causes for unplanned power cuts: weather, other people accidentally damaging power supplies, and trees or vegetation.

Severe weather can cause damage to overhead and underground power lines, debris and trees falling on power lines can pull them down, water can get into underground electricity cables and lightning can strike essential infrastructure.

Vegetation infringing on the overhead network is one of the major causes of power cuts in the UK. Even the day-to-day effect of a tree brushing against a cable is thought to be one of the most common causes of power blackouts.

Because of this, all electricity distributors are required by the Electricity Supply and Continuity Regulations to keep vegetation clear of overhead lines.

The problem

Two of the main challenges facing electricity network operators are the physical scale of the overhead network, coupled with its often remote or inaccessible location, and the changing nature of the problem as vegetation grows.

UK Power Networks, which delivers electricity to over eight million customers in the South East, East Anglia and London, has nearly 60,000km of overhead lines. In the past, this network has been continuously monitored on foot by surveyors. In a task that rivals the continual painting of the Forth Road Bridge, surveying the entire network normally took around three years, and had to be undertaken as quickly as possible to prevent the data being out of date by the time it was all collected.

Testing technology

In 2013, UK Power Networks embarked on a project backed by the Office of Gas and Electricity Markets (Ofgem)’s Innovation Funding Incentive, to establish whether a combination of high-definition satellite and light detection and ranging (LiDAR) data could be used to survey vegetation infringement on the high-voltage overhead line network with sufficient accuracy to enable a risk-based approach to tree cutting. The trial was carried out in two areas of the power network, representing about 1% of UK Power Networks’ high-voltage overhead lines.

UK Power Networks found that LiDAR could reduce the need for field-based vegetation surveys by up to 80%, while providing more accurate and objective assessment of the tree-cutting workload and cost. The trial also identified potential savings of up to 20%, reduced risk to field workers and less impact on landowners. Furthermore, low-hanging conductors could be identified by the remotely sensed data, improving safety through detection and disconnection.

UK Power Networks entered into a contract with aerial mapping company Bluesky and agricultural and environmental...
Consultants ADAS following a competitive tender. The project involved high-resolution aerial photography and LiDAR measurements of UK Power Networks’ entire overhead lines in the East and South East of England regions at high voltage and above, covering some 34,000 km².

Bluesky survey planes covered the project area in just over three months; operating to tight deadlines and specifications in challenging weather conditions and under strict air traffic control restrictions. Bluesky captured in excess of 80TB of raw data, made up of millions of individual height measurements as well as around 310,000 aerial images.

Seeing the wood from the trees
The raw data was analysed to create a spreadsheet including details about the high-voltage network and a risk assessment. Data covered the proximity and direction of vegetation and the distance between overhead lines and vegetation in diagonal, vertical and horizontal perspectives.

Vegetation risk levels, from very high to high, medium and low, were computed, according to proximity and voltage, and the linear extent of vegetation along each span to calculate the risk level for each. Customer numbers were also factored in to assess the impact of potential outages and inform cost-benefit analysis. UK Power Networks has used these results to prepare a three-year tree-cutting programme, which will be refreshed every two years and prioritised according to the potential risk to customers from power outages.

Bluesky also created a virtual reality representation providing a real-world view of the network and its surroundings. The 3D desktop portal allows UK Power Networks staff to explore the network and analyse data without leaving the office.

Moving forward
The tender process reduced anticipated survey costs by an estimated third and, as technology evolves, it is expected that data collection costs will fall further. The project has also enabled a reduction in UK Power Networks vegetation management costs by around 20%, equivalent to around £5m annually, as well as ensuring that tree cutting is targeted at higher-risk spans to get the best value from the £19m annual tree-cutting spend. Contract tenders have also provided more accurate quotes for jobs to be undertaken, offering additional savings on unexpected works.

UK Power Networks expects to see significant and repeatable improvements in the field over the three-year revised tree-cutting programme. Evidence of a reduced number of overhead line faults where cutting has taken place has already been collected and is being analysed. Unexpected benefits from the project include accurate geographic referencing of pole and tower supports, improved span length, and therefore overall network length, and measurement and identification of data anomalies between different asset register systems.

The results are also being used to carry out an audit of previous contract compliance. The objective is to review both the scope and effectiveness of past tree-cutting activities and recover, if appropriate and fully supported by evidence, costs that have already been incurred. UK Power Networks has also invited tenders for a similar project across all voltages on the overhead line network and is exploring other aerial surveying activities such as condition-monitoring patrols and conductor height assessments.

Focus on LiDAR
An airborne LiDAR, such as the one used by Bluesky to map the UK Power Networks overhead line network, consists of a single laser emitter coupled with a receiving device. The laser produces an optical pulse – a beam of light – that is transmitted to the ground and then reflected, either by the earth’s surface or an object on the surface, and returned to the receiver.

The receiver records the time of travel for the pulse and the intensity of the light returned. As the pulse is travelling at a known speed – the speed of light – the travel time can be accurately converted into distance or range. This laser range is combined with the known position of the sensor, from the on-plane GPS, and the laser orientation, from an inertial measurement unit, to calculate accurate x, y and z ground coordinates for each laser pulse.

An airborne laser working at 500MHz can fire up to 500,000 pulses of light per second. As modern LiDAR systems can record multiple returns from the same pulse, this greatly increases the detail obtained and therefore the volume of data collected.

Bluesky operates an Orion M300 from Optech, the world’s smallest complete LiDAR mapping system, which includes multi-pulse technology and an effective ground sampling rate of 300KHz, significantly increasing the efficiency of data collection and the density of collected points.

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Related competencies include Mapping, Legal/regulatory compliance, Remote sensing and photogrammetry.
Safe as houses

As new voluntary guidelines become the globally accepted standard, Paul Munro Faure reflects on the enduring importance of tenure

We are all familiar with that old adage that possession is nine-tenths of the law. In many parts of the world, this is as true now as it ever was. And, of course, it was true of England in times past.

The enormous dislocations associated with the Wars of the Roses in 15th-century England and Wales made land ownership a tenuous affair. The letters of the Paston family of Norfolk, one of only four fairly comprehensive sets of family letters that remain from that period, show how much time and effort was needed to maintain tenure.

Gresham, a fine moated house in Norfolk, was purchased by the Pastons from Thomas Chaucer, son of the poet Geoffrey Chaucer, in 1428, in what was regarded as a legal transaction. But the property had been the subject of confused claims and counter-claims for almost a century, such that, in 1448, 20 years after the Pastons’ purchase, Lord Moleyns claimed it and seized it by force.

Some three years later, after exhausting all attempts to remove the usurpers by judicial restitution, the Pastons instructed their servants to retake possession. The house was in such a state of disrepair that it was beyond restoration, and was abandoned. It remains today an overgrown landmark in a field outside the village of Gresham.

The international picture

Tenure matters more now than ever. While Europe has stable systems of tenure, there are many places in the world where this is not the case. When the UN was set up in 1945 it faced massive challenges. Europe was in chaos, millions had lost homes. One of the first official appointments of the embryo Food and Agriculture Organisation (FAO) was that of a land tenure officer.

Even today, in many countries, it is advisable to keep a property occupied 24/7 to prevent others taking unauthorised possession. This has implications for everything in the social, cultural and economic landscape, ranging from discouraging investment to limiting children’s attendance at school so they can safeguard the family’s property. It restricts development fundamentally.

In the mid-2000s the UN, led by the FAO, began to address the tenure challenges posed by development pressures, urbanisation, population growth, economic development, climate change, corruption and other factors. As part of this process, the UN’s Committee on World Food Security in May 2012 endorsed the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security.

These guidelines are a huge step forward, advancing the cause of people’s legitimate tenure rights.

What are the guidelines?

The guidelines offer a global consensus on internationally accepted principles and standards for responsible practices in governance of tenure, recognising and respecting people’s legitimate tenure rights. They serve as a tool to improve the governance of tenure for the benefit of everyone, in particular those who are vulnerable and marginalised, aiming for food security and the progressive realisation of the right to adequate food, sustainable development and environmental protection.

- They are not legally binding, neither do they replace existing national or international laws, commitments, treaties or agreements. They do not limit or undermine any legal obligations that states may have under international law.
- They are an essential mechanism in the fight against hunger and malnutrition.
- The guidelines offer a framework that states can use when developing their own strategies, policies, legislation, programmes and activities.
- They allow governments, civil society, the private sector and citizens to judge whether their proposed actions and those of others constitute acceptable practices.
- They also seek to improve the policy, legal and organisational frameworks regulating the range of tenure rights that exist over these resources.

While the voluntary guidelines were prepared in the context of food security, they also contribute to other development goals, including poverty eradication, sustainable livelihoods, women’s tenure rights, social stability, housing security, rural development, environmental protection and sustainable social and economic development.

Clear targets

The global community agreed the Millennium Development Goals (MDGs) in 2000 to cover the first decade and a half of the millennium. However, the MDGs made no reference to issues relating to tenure – how real property is held, accessed and administered.

Following the voluntary guidelines, this has changed with the agreement of the Sustainable Development Goals (SDGs) for the period 2015–30. Formally adopted by the UN General Assembly in New York on 25 September 2015, the SDGs
include clear targets putting tenure firmly on the global agenda, ensuring:
- that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property
- that agricultural productivity and the incomes of small-scale food producers – in particular women, indigenous peoples, family farmers, pastoralists and fishers – are doubled, by ensuring their secure and equal access to land
- that reforms give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property
- that access to adequate, safe and affordable housing is ensured.

Since 2012, there has been an extraordinary increase in awareness of the importance of, and the potential for, the voluntary guidelines to make a real difference through responsible governance of tenure, which has been strongly reinforced by the SDGs.

The voluntary guidelines have effectively gone viral, with astonishing levels of take-up across all stakeholder groups reflecting a shared commitment to their development and application.

Many civil society organisations, including ActionAid, Caritas, Oxfam and others, are using the guidelines to help people safeguard their tenure rights.

The private sector is taking up the challenge as part of corporate social responsibility initiatives, with global brands such as the Coca-Cola Company, PepsiCo, Nestlé and Cargill using the guidelines in their policies. Academia is also producing detailed technical guides in specific areas to support implementation and student learning.

The guidelines have changed the discourse and landscape on tenure rights at global, regional and country levels. They are changing global strategies by escalating recognition of the fundamental, cross-cutting importance of tenure in addressing many developmental, environmental and other issues. Tenure and the voluntary guidelines principles were significant in the COP21 climate change discussions that led to the historic agreement in Paris in December 2015.

New conversations
Because the guidelines present a neutral framework agreed by all parties, they are enabling a diverse range of stakeholders to have new conversations and work together productively.

States are taking up the guidelines, and donors are supporting countries in their implementation. The government of Guatemala, for example, recently passed a new land policy into which the guidelines were integrated.

Sierra Leone is championing the guidelines in their reviews of legislation. Government policy-makers and other stakeholders in several countries of the western Balkans are planning to increase gender equality in access to land. The international community, through the Global Donor Working Group on Land, is progressively and openly sharing information that is enabling donor coordination to be improved to help implement the guidelines.

Long road ahead
The work is just a start in recognising and respecting people’s tenure rights and creating appropriate administrative systems that will help realise these rights.

More awareness is needed, especially at the national level, and greater capacity is required at all levels and across all groups. Further national-level work, drawing on more and stronger partnerships, is at the root of successful change, and more monitoring will be essential to keep track of progress.

The FAO and many others see considerable opportunities for moving forward by strengthening partnerships with and between governments, civil society organisations, the private sector and academia. These will also involve the professions concerned, including those represented by RICS, which has been a long-standing partner in this work by sharing experiences across countries and developing capacities more widely to encourage greater implementation of the guidelines on the ground.

This article is based on a lecture given by the author in acceptance of the RICS 2015 Michael Barrett Award. The views expressed in this article are those of the author and do not necessarily reflect the views or policies of the FAO.

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Related competencies include Cadastre and land management, Legal/regulatory compliance, Property records/information systems.
Surveyors are well placed both to prevent and upgrade slums in growing cities, says Paul van der Molen

Right place, right time

Managing the urban environment sustainably is one of the major challenges for the future, according to the UN. It says that a lack of good urban governance causes uncontrolled urbanisation and leads to slum development.

In 2011, 3.6 billion of the world’s 6.9 billion people lived in urban areas (52%). In Africa, the proportion was 36%, in Asia 45%, in Latin America 79%, in Europe 72%, and in North America 82%, according to UN Habitat research from 2008.

By 2050, 6.2 billion people out of an estimated world population of 9.3 billion are expected to be living in urban areas (67%). The rural population is then expected to be three billion (32%), which is a little less than the current figure.

The growth of cities needs to be properly managed, as the development of slums is seen as a failure of management.

Slum dwellers

In 1990, the number of slum dwellers was 656 million. In 2000, this figure grew to 766 million, and in 2010 to 827 million. Because of the general growth in urban population, the percentage of slum dwellers declined from 46% in 1990 to 39% in 2000 and 32% in 2010.

While the world’s urban population grows annually by 66 million people, the number of slum dwellers rises by an average of 6 million. Every year, 28 million more people settle in slums, but 22 million leave them.

Preventing future slum formation is a matter for urban planning. Conventional urban planning, the masterplan approach, however, fails to secure appropriate standards of living for the growing number of inhabitants.

Existing zoning serves wealthier people, while unrealistic planning regulations force the poor to break the law to find shelter and survive. Conventional planning typically criminalises the informal economy and is too much a controller rather than an enabler, experts say.

Upgrading

Upgrading slums is much more expensive than preventing them, so urban growth has to be planned and governments will have to take the lead. New forms of urban planning should seek to meet the future needs of low-income populations better by taking the following approaches:

- making land and trunk infrastructure available
- developing education, health and employment services
- creating realistic and enforceable regulations and standards.

Ways of doing so include:
- strategic spatial planning, giving direction in the long term, with flexible local projects
- planning as coordination between sectoral development plans or urban management programmes; although more planning innovation is needed.

Recently, an analysis of 120 cities by Prof. Schlomo Angel of New York University drew up a “make room for cities” proposal, not in a detailed masterplan, but by establishing expansion areas for road networks, public spaces and utility services, as well as rights to secure tenures.

Meanwhile, the UN has recommended using unconventional instruments such as land development, land pooling and land banking, value capturing and land readjustment. Until the 1970s, the usual approach of governments to slums was negligence and clearance. Since then, however, slums have been recognised as urban realities that require an adequate response. In 1972, the World Bank started programmes on self-help, sites and services projects and slum upgrading. But evaluation of these programmes showed that they were blocked by a lack of government policies on dealing with informal settlements; so, in the 1980s, the World Bank shifted its attention from upgrading to policy development.

Land tenure security

Low-income groups’ struggle for shelter is often a matter of either securing land on which to build or obtaining tenure on land that is already occupied. Insecurity of tenure is a major feature of slum dwelling.

In addition, without secure tenure, slum dwellers have no access to regular forms of credit and are forced to take loans from informal sources at high rates with short repayment times.

Security of tenure is the most important measure for improving access to adequate housing, says the Centre for Housing Rights and Evictions. It wants to establish legal security of tenure for all people and households who lack protection, ensuring that any housing rights violations by third parties, such as landlords or property developers, are prevented, and to protect tenants against unreasonable or sporadic rent increases.

There is, however, concern about granting full titles as a solution, as experience reveals that this also increases land prices, which in turn encourages landowners to sell their plots, realise the higher capital value and resume squatting.

One way to ensure that low-income settlements are sustained is the granting of group titles, provided that the community is organised.

Collective title, however, might prevent members from moving out, and encourage them to invest in their homes. So a community can choose to shift to individual ownership when, for example, a loan for acquiring the collective title is repaid.
Formal freehold titles are not seen by slum residents as an adequate response to their understanding of tenure security. Through abiding by certain social rules in the community, they feel fairly secure.

Protection against forced eviction is therefore an overriding priority, making the provision of property titles possible over the long term.

Comprehensive and regularly updated housing, property and land registration systems are a crucial element of securing tenure, although land registration does not automatically provide such security. Besides, registration processes might favour wealthier people and marginalise the poor. The establishment of other forms of land inventories, which simply record claims of landownership and property rights without the legal authority to determine them, can be one solution.

A role for surveyors?

A well-functioning spatial information system is one of the most important prerequisites in providing land to house the poor. Without a clear land information system, planning for a city’s roads, infrastructure networks, social amenities, public facilities and housing becomes difficult. Spatial information systems that support rapid urbanisation will therefore include spatial, economic, social, administrative and legal data. But because most countries have incomplete land registration and land record systems, both land and tenure data should be included that does not depend exclusively on existing legal data, but also draws on social or community relationships, for example.

In general, better information should help local and central government deal with increasing demand for services, land and infrastructure. Land information management (LIM) and broader spatial information management (SIM) offer a solution through the use of technical innovations in data collection, integration, processing and management and appropriate spatial data infrastructures.

Surveyors should not only address spatial data but also attributive data (that is, non-spatial data), to gather meaningful information. Other methods should also be mastered, such as effective street addressing and enumeration methods.

Surveyors should exploit their expertise in the newest technologies when undertaking data acquisition, processing and presentation, to establish a cost-effective information supply for citizens and decision-makers. Surveyors’ experience in maintenance can also help safeguard the investment in land information systems. A crucial weakness of programmes to upgrade slums in the past has been the failure to ensure that there is ongoing maintenance and upscaling. When governments refrain from taking action, participatory mapping and cadastres can offer the solution.

Better security

Land tenure security remains a cornerstone of planning for and upgrading slums. This does not have to take the form of fully fledged property titles, but can constitute, for example, simple anti-eviction rights, or collective urban tenure that might develop into individual tenure at a later stage.

Poor land record systems and centralised information systems present a major problem. However, it can be addressed by approaches such as local land registers, effective linkages between central and local information and functions, more inclusive registers, parallel land registration, digital access and simplified recording of spatial representation.

A good example is the concept of the International Federation of Surveyors (FIG)’s so-called ‘fit-for-purpose’ land administration system, paving the way for cheap, quick information systems, and the land administration domain model as a flexible, extensible tool.

The implementation of land readjustment could benefit both the community and local government, enabling win-win situations. While the processes are complex and demanding, surveyors can gain expertise in both the urban environment, in the fields of land readjustment and land banking, and in the rural environment, in land consolidation and land pooling.

Conclusion

Surveyors have the capacity to contribute significantly to governance of urbanisation processes, specifically in slum prevention or slum upgrading, with a good fit between societal demand and professional supply.

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Related competencies include Planning, Mapping, Cadastre and land management.
Over recent decades, urbanisation has led to unprecedented pressure on development and use of land in world cities, which have seen a growing number of multi-storey buildings and other urban infrastructure. Urban built environments are becoming more complex.

Such complexity requires collaborative and multidisciplinary approaches to manage cities in an optimal way. One requirement is effective management of spatial information about rights, restrictions and responsibilities that are associated with the ownership of land, buildings and airspace.

Land administration systems are responsible for storing and disseminating information about such ownership arrangements. These systems use 2D subdivision plans to delineate cadastral boundaries, which efficiently represent the spatial extent of cadastral spaces in buildings with simple structures.

However, they face challenges when mapping the spatial extent of ownership interests in multi-storey buildings with complex architectural configurations. The viability of 3D digital technologies to meet these challenges is being investigated. One of these 3D technologies is building information modelling (BIM), which can help manage buildings over the course of their life cycle.

There is detailed information about structural and architectural building elements in BIM models. However, there is no information about ownership of private and common property spaces. By enriching BIM models with cadastral information, though, there is the potential to address the current challenges in urban land administration.

The following list sets out a range of such administrative challenges.

- Flat and 2D-based representations may not show 3D delimitation of cadastral spaces inside buildings with irregular and complex shapes effectively.
- Multiple pages of 2D drawings, which are used to show all cadastral spaces in high-rise buildings, make it difficult for owners to understand the 3D limits of their interests.
- Delineating the boundaries for common areas, made up of stairs, elevators, lobbies and corridors passing through several storeys, is very difficult using 2D plans.
- Defining cadastral boundaries from a building’s physical elements such as walls, windows or doors is also a challenge. For example, in the Australian state of Victoria, these boundaries are defined using one of three relationships with the physical element: touching the interior face, touching the exterior face, or passing the median of the physical element itself. A person with inadequate knowledge could quite easily misinterpret the boundary.

**Building information modelling**

BIM is mainly recognised from two distinct perspectives, namely process and product. From a process perspective, BIM is a way of creating, storing and sharing building information, enabling multidisciplinary collaboration and communication among various stakeholders involved in the development, management and operation of buildings (see Figure 1).

The BIM process is based on 3D physical as well as functional information about a building to support various decisions that need to be made during its life cycle.

The prominent features of a BIM product are object-oriented data structure, rich semantic and spatial information supporting 3D spatial relationships between building elements, and extendable data models. BIM provides productivity benefits and cost savings in various phases of a building’s life cycle, from conception to demolition.

In the architecture, engineering and construction industry, BIM has helped to overcome challenges posed by using 2D drawings or even 3D CAD models. There are, however, some obstacles to the adoption of BIM in the industry. The most prominent technical challenge is interoperability; that is, the ability to exchange data between different BIM platforms correctly. This issue stems from the fact that each BIM platform has its own data format for using a model.

The BuildingSMART organisation has developed the Industry Foundation Classes (IFC) standard as an open data model to enable interoperability and data exchange among BIM platforms.

**A cadastral BIM model**

To showcase the viability of BIM for managing 3D cadastral spaces, a prototype model for a multi-storey building in Melbourne, Australia, has been developed in Autodesk Revit software. Revit does not provide 3D visualisation of spaces, so the model was converted to IFC standard format and the open-source BIMServer and BIMViews were used to visualise the model in a web browser with WebGL capability.

Both private and common property cadastral spaces were defined in the model, and ownerships associated with cadastral spaces incorporated. For each private cadastral space, information about its owner, land use and title can...
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Benefits of BIM

The prototype model shows that BIM can offer some benefits for managing stratified cadastral spaces in an urban built environment. The first benefit would be enhancing visual communication of interweaved, stacked and complex cadastral spaces for non-specialists. The rich spatial and semantic information about physical structures in 3D models can help understanding of cadastral boundaries, providing an unambiguous delineation of ownership, rights, responsibilities and restrictions.

Additionally, using BIM environments for managing cadastral information can advance current land administration systems from a 2D-based and analogue data environment into a 3D digital, interactive and dynamic one. BIM can also unlock value in cadastral information by forming a bridge with the interactive life cycle and management of the building. Another benefit would be determining various responsibilities related to the maintenance and management of assets and facilities in buildings.

Incorporating cadastral boundaries into BIM can reveal who is responsible for repairing damage. For instance, if a wall boundary between two apartments is interior, the wall is part of a common property area. This shows that enriching BIM with cadastral information would enable enhanced collaboration between land administration and facility management systems.

Conclusion

BIM can provide a feasible solution to help communication of complex cadastral spaces. The prototype model demonstrated how different types of cadastral space as well as physical boundaries can be managed in the 3D BIM digital data environment.

The highlighted benefits indicate the impact a BIM-based land administration could have in the governance of an urban built environment.
**Tom Pugh** outlines the opportunities provided by the new International Property Measurement Standards

**Raising the standard**

The continuing rapid expansion in the use of building information modelling (BIM) has highlighted the importance of measurement surveyors becoming integral to the design and build process. Measurement professionals now have another chance to be seen on a similar level to other property professionals with the introduction of the International Property Measurement Standards (IPMS) aimed at eliminating cross-border discrepancies in measurement practice.

In a ringing endorsement of the importance of the information that measurement professionals provide, the new standards recommend that all IPMS measurements are supported by CAD drawings or BIM data. The input of measurement professionals is now very much embedded in the due diligence process for every multi-million-pound property transaction.

RICS has embraced the new standards, and 1 January 2016 saw the incorporation of the IPMS into the RICS professional statement RICS Property Measurement, 1st edition – itself a redrafting of the RICS Code of Measuring Practice (CoMP). It is expected that measurements to IPMS will become the norm and something you can expect your clients to ask for – or anticipate. So, while compliance with the professional statement is mandatory for RICS members, the IPMS will affect all property professionals.

So far, the IPMS coalition has released the standards for offices. Residential, industrial and retail will follow.

**RICS CoMP vs IPMS**

Reporting under IPMS is not hugely different to RICS CoMP. Most obviously, naming conventions have changed: gross external area (GEA), gross internal area (GIA) and net internal area (NIA) are now known as IPMS 1, IPMS 2 – Office and IPMS 3 – Office.

The differences are fully set out in the professional statement, but the most important are briefly summarised here:

- balconies, covered galleries and rooftop terraces are included in IPMS 1 and IPMS 2 – Office
- in IPMS 3 – Office, columns are included while standard building facilities (e.g. corridors, toilets, lifts, stairs) are excluded
- IPMS 3 – Office also introduces the concept of limited-use areas such as those with restricted ceiling height; these can be highlighted separately to enable translation from the preceding standards into the IPMS

- internal measurements are now taken to the internal dominant face for both IPMS 2 & 3.

**When to use IPMS**

There is no immediate requirement to re-measure offices where the existing lease or contract is based on figures derived from an existing standard, or which stipulates a particular measurement standard. Clients can stick with their preferred method.

But buildings should be measured under IPMS at key lease events such as new agreements, rent reviews, when selling or buying, or revaluations.

Adopting a long-term view may well be the shrewdest approach. For example, it will be much more cost-effective if the landlord of a multi-let building rather than measuring each space as the individual leases expire. It would also eliminate the potential confusion in having the newly let unit's rent calculated using IPMS, while service charges are CoMP-based until the remaining units leases expire.

Professionals should take every opportunity to extol the virtues of having a good set of floor plan data. Valuable, accurate and adaptable IPMS data can be used for so much more than just area calculations by all property stakeholders. For example, they can be used in refurbishment costing, space planning and setting service charges, as well as agreeing rent and valuations. The benefits IPMS offers are wide-reaching.

**Bedding-in period**

There is no standard ratio between CoMP and IPMS but RICS has developed a free online tool that converts IPMS office measurements into local standards.

There will be a period of dual reporting – presenting areas in both formats – while the new system becomes embedded, however.

**An opportunity**

It may well be that measured survey instructions will rise as a result of IPMS, at least at first. But this is not just an opportunity for geomatics and land surveyors. It is a way to promote transparency, consistency and comparability, boosting confidence in the property industry – no bad thing.

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For more information on IPMS visit: [www.rics.org/internationalsstandards](http://www.rics.org/internationalsstandards)

Related competencies include Legal/regulatory compliance, Property records/information systems, Measurement of land & property
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