

Green Infrastructure

Powering economies

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Even in towns and cities, people have a deep connection with nature. **Denial**¹ of that connection leads to **diminished**² physiological and psychological **wellbeing**³. Society functions best when it is **embedded**⁴ in natural green spaces; green spaces where people live, play and work. In this presentation, made by Jago Keen, we will find what we need to **harness**⁵ its findings in policy and **guidance**⁶ to build 'strong and stable' places for society.

Jago Keen (Hampshire, UK) has qualifications and experience in **arboriculture**⁷ and nature conservation and applies complex system thinking to the challenges presented by town planning, green infrastructure management and projection planning. He has two decades of experience spent in the 'natural capital' sector, managing natural assets to ensure ecosystem services are delivered. Jago was, until recently, chairman of the Arboricultural Association in the United Kingdom.



<http://www.keenconsultants.co.uk>

At this conference, you will get to share experiences of the challenges and opportunities we, as green infrastructure professionals, **face day to day**⁸.

Some of you may already have faced a challenge in getting green infrastructure accepted by decision makers. A common question, a common barrier, is why should we bother investing in green infrastructure? What's in it for us? Why bother?

For some people, it is easy to understand. They get it. We are amongst those that understand its value. The organisers of this conference, the Department of Natural Resources and Ecology of the Voronezh region understand it and value it.

But it is also understandable that green infrastructure needs to **justify**⁹ its **spend**¹⁰. Its budget needs to sit alongside the budget for transport, health, defence, sanitation. Each is **intertwined**¹¹ and **interdependent**¹². One doesn't function without the other. That's why we, as professionals in green infrastructure need to develop our budgetary **toolkit**¹³. The facts, figures and messages to ensure green infrastructure gets its budget. If you like, the green infrastructure game!

Green is the new game. Green is mainstream. We can now play computer games to build green cities and I am encouraged that future generations, players of these games, will see green cities as fun.



Living the Dream

Some of what I share with you today you will know. Some of it will be a repeat of what I have already mentioned at these conferences. I make no excuse for that as it is all part of our game plan. There is an old saying about business promotion: tell them; tell them; and tell them again. It's our gameplan to **reinforce**¹⁴ our message.

Green cities **sustain**¹⁵ life, sustain business, **sustain** economies. Green cities save on health care, save **pollution**¹⁶, save lives.

Don't think it is just about money. Green infrastructure is much more than that – emotional, **intangible**¹⁷, **thought provoking**¹⁸, **inspiring**¹⁹ and health giving. But let's focus, over the next few minutes on the financial side of green infrastructure.

Income for life

Green Infrastructure is not a pop-up business. It is not here today and gone tomorrow but an **asset**²⁰ that provides returns for lifetimes – several human lifetimes.

And that is how I propose to look at the economics of Green Infrastructure – through the lens of our lives. From our beginning, through our development, and as we **mature**²¹, green infrastructure has a role to play throughout our lives.



Healthcare

Why start with healthcare? Well, it is often our first introduction to the world where we need the most care. Our mother needed it and we certainly need a little attention when we arrive.

Imagine **popping out**²² here, in this oasis of a hospital in Singapore. I know Singapore has an ideal climate for plant growth but it really does **embrace**²³ green infrastructure positively. Singapore is not lazy or indifferent to GI (Green Infrastructure). It really does recognise the value of it.



EnglishMag



Looking at some numbers research has revealed: **Pregnant**²⁴ women that have more **tree canopy**²⁵ and green space near their homes generally have babies with healthier birth weights. Good news for mum and baby and good news financially – this represents a \$5.5 million (440 million rubles) saving on annual health costs. [Ref.5]

Millions of children in the 3-7 year bracket are treated for **Attention Deficit Hyperactivity Disorder**²⁶. Studies in the USA have revealed that activity within nature or green spaces **reduces**²⁷ symptoms [Ref.8]. Reduces symptoms and reduces costs on medication by between \$396 million and \$1.9bn. 31 billion to 152 billion rubles.

Where adults had become **sedentary**²⁸, providing access to neighbouring open space and physical activity, **reduced**²⁷ their annual healthcare charges by \$2200 per adult. Apply that to the adult population here in Voronezh and there is a potential saving of round 80 billion rubles.

Education

“Education; education; education”. – That was the mantra of one of our past prime ministers. We have had a few of those in recent years.

Now there are green schools and there are green schools. This one in Bali is rather special but all our schools need to be green.

Why? Because:

A well educated population fuels a successful population. Higher **gross domestic product**²⁹. Better standing in-regional and world rankings.

Seeing nature and **greenery**³⁰ from school buildings can **foster**³¹ positive academic outcomes – higher test results, higher **graduation rates**³², higher numbers of students going on to further education. [Ref. 9,10]

Education; education; education – that is why we are all here today. And I hope you share the education brought to you by this conference with the policy and decision makers so they also understand better the value of green infrastructure.

Working life

So you've been educated in a green school and now you face a career choice. Not everyone will get a chance to work in an office environment like this. Many will be lucky to have a window. Many will only see **concrete**³³ and glass through that window. But if you are one of the

workers with a view of nature through your window you will enjoy 19% fewer **ailments**³⁴ compared to a colleague with no view of nature.

Did you know that greater investment in nature near where you live and work can increase a nation's graduates' lifelong income by \$1.3 billion (104 bln rubles)? [4] Business understands the value of green infrastructure – **reduced**²⁷ stress and **anxiety**³⁵. Busy, highly stressed working lives **take their toll on**³⁶ us. Stress related illness is a major **drain**³⁷ on healthcare resources and one of the key reasons for worker absence. Access to green space reduces stress, improves mental health, reduces treatment cost and improves worker productivity. Improved worker productivity means more **efficient**³⁸ and effective business. Studies of retail **environments**³⁹ show consumers prefer shopping areas with trees rather than **barren**⁴⁰ **pave-ments**⁴¹. There is a willingness to pay 12% more for products in a tree-lined district than a **barren**⁴⁰ district. Rental rates for commercial offices are 7% higher when they are set in high quality landscapes. [7]

Home Life

So you have your career and you are **seeking**⁴² a home life, starting a family. You want somewhere comfortable, somewhere welcoming, somewhere safe.

Of course, this is where green infrastructure can present a high **cost of entry**⁴³.

Studies have **revealed**⁴⁴ that development land is up to 27% more expensive where trees are present, and various studies over time have shown that house prices are between 4% and 19% higher where trees are present. [2,3]



It shouldn't be more expensive to live where we know it is best to live but by improving a **neglected**⁴⁵ neighbourhood it creates an **uplift**⁴⁶ in the wealth of its residents.

Here is a role for the government to invest, **uplift**⁴⁶ and improve.

Later Life

It doesn't stop giving. GI is just as financially **rewarding**⁴⁷ in later life as it is in all other stages of life:

Here the Queen visits a garden that Kate, Duchess of Cambridge, designed for Chelsea Flower Show. The theme of the garden, and much of the Show, was access to nature. Re-connecting with nature for the many benefits it brings to our lives.



Returning to later life, if you become hospitalised you will recover quicker if you have a view of nature. One study revealed a saving of around 52 billion rubles **per annum**⁴⁸. [1]

Access to nature for those in later life **sustains**⁴⁵ mobility. Sustained mobility leads to fewer falls saving \$1.7 to \$2.4 billion (136 to 192 billion rubles). And similarly **gargantuan**⁴⁹ savings are had in other areas of healthcare such as hypertension, cognitive disorders and dementia care. [4]

Whole Life

Throughout our lives, there are other financial **rewards**⁴⁷ associated with green infrastructure.

Green cities reduce costs associated with the crime by \$928 million (74 billion rubles) per year. [11]

Even bizarre facts and figures **emerge**⁵⁰. UK garden tourism generates £2.9 billion (230 billion rubles) of UK Gross Domestic Product.

I need hours to tell you about all the financial benefits but by now you know the value of green infrastructure



Ecology

is billions **per annum**⁴⁸, trillions over lifetimes. It is not expensive to **implement**⁵¹ and the returns are multiple. Let me tell you quickly about a UK city of similar size to Voronezh. The city of Birmingham sees an annual net benefit to society from greenspace and parks of £600million (48 billion rubles). For every ruble Birmingham invests in its green infrastructure it sees a return of over 24 rubles to society. [See Ref.13] Voronezh has that **capacity**⁵². Voronezh could see a return of 24:1 on every ruble it spends on green infrastructure.

Where else can you get a 24 times uplift on an investment? Tell me and I will invest.

treecitiesoftheworld.org

There is now worldwide recognition for your city being green. Birmingham is about to become the first UK Tree City of the World.

Under a **joint**⁵³ Arbor Day Foundation and United Nations award programme Birmingham will get worldwide **recognition**⁵⁸ for that investment in its society.

It is something that Voronezh can consider, it is something other cities here in Russia or the CIS countries can seek. Your city can gain recognition for its green programme.

The standards to meet are simple:

1. Make sure there is a statement from city leaders setting out responsibility for the care of the city's trees.
2. Make sure the City has some rules for governing the management of its trees.
3. **Ensure**⁵⁴ there is an up to date inventory of the trees – know your resource.
4. **Allocate**⁵⁵ the resources to deliver that tree management.
5. Celebrate your trees – an annual celebration to raise **awareness**⁵⁶ among residents. Voronezh already hosts its City Garden event.

From what I know of the Russian way I would not be surprised if all the Russian cities can meet these standards, or at least are very near meeting them. The world needs to hear of your achievements; they need to know how green the Russian cities are. I **encourage**⁵⁷ you all to take the opportunity to gain this worldwide **recognition**⁵⁸.

Voronezh

Voronezh is a world-leader in many aspects, including green infrastructure. This region has **consistently**⁵⁹ delivered a Garden Festival, a Green Infrastructure conference, numerous green infrastructure projects.

It deserves **recognition**⁵⁸ for that investment. It deserves to be recognised as a Tree City of the World. I **encourage**⁵⁷, and will support, their application.

Recognition⁵⁸ of investment in green infrastructure is deserved by any that commit those funds to make our towns and our cities green.

In answer to the question we had at the beginning: Why bother with green infrastructure? We bother, we invest, we build green infrastructure so that we may **prosper**⁶⁰. Not just that we may **prosper**⁶⁰ but that our children may **prosper**⁶⁰, our grandchildren may **prosper**⁶⁰.

Let's invest now. Let's invest well. Let's invest for those to come.

Thank you.



Glossary

1. denial [dɪ'naɪəl] – отказ
2. diminished [dɪ'mɪnɪʃt] – уменьшённый; ослабленный; истощённый
3. wellbeing [ˌwel'biːɪŋ] – благополучие; благосостояние
4. embedded [ɪm'bedɪd, em-] = imbedded – вставленный
5. harness ['hɑːnɪs, -nəs] – использовать (в определенных целях)
6. guidance ['gaɪd(ə)n(t)s] – руководство
7. arboriculture ['ɑːb(ə)rɪˌkʌltʃə] – лесоводство; выращивание деревьев
8. face day to day – сталкиваться изо дня в день
9. justify ['dʒʌstɪfaɪ] – доказать
10. spend – an amount of money paid out (трата)
11. intertwined [ˌɪntə'twɪnɪd] – переплетённый
12. interdependent [ˌɪntədɪ'pend(ə)nt] – взаимозависимый
13. toolkit – инструментарий (набор к действию)
14. reinforce [ˌriːɪn'fɔːs] – укреплять
15. sustain [sə'steɪn] – поддерживать
16. pollution [pə'luːʃ(ə)n] – загрязнение
17. intangible [ɪn'tændʒəbl̩] – неосязаемый
18. thought-provoking [θɔːt prə'vʊkɪŋ] – к размышлению
19. inspiring [ɪn'spaɪərɪŋ] – вдохновляющий
20. asset ['æset] – ценный актив
21. mature [mə'tʃʊə] – достигать состояния зрелости
22. pop out – выскакивать (здесь: родиться)
23. embrace [ɪm'breɪs, em-] – обнимать; принимать
24. pregnant ['pregnənt] – беременная
25. tree canopy – зелёный покров деревьев
26. Attention deficit hyperactivity disorder (ADHD) – синдром дефицита внимания и гиперактивности
27. reduce [rɪ'djuːs] – понижать, сокращать
28. sedentary ['sed(ə)nt(ə)rɪ] – сидячий
29. gross domestic product [grəʊs də'mestɪk 'prɒdʌkt] (GDP) – валовой внутренний продукт
30. greenery ['griːn(ə)rɪ] – зелень
31. foster ['fɒstə] – побуждать; стимулировать
32. graduation rates – количество выпускников
33. concrete ['kɒŋkri:t] – бетон
34. ailment ['eɪlmənt] – нездоровье
35. anxiety [æŋ(g)'zaɪəti] – беспокойство; тревога
36. take toll on sth. – брать верх над чем-то
37. drain [dreɪn] – утечка, истощение
38. efficient [ɪ'fɪʃ(ə)nt, ə-] – эффективный
39. environment [ɪn'vaɪər(ə)nmənt] – окружающая среда
40. barren ['bær(ə)n] – бесплодный
41. pavement ['peɪvmənt] – тротуар
42. seek [si:k] – искать
43. cost of entry – стоимость входа на рынок
44. reveal [rɪ'vi:l] – открывать, раскрывать

45. neglect [nɪ'glekt] – пренебрегать
46. uplift – подъём (социальный, экономический)
47. rewarding [rɪ'wɔːdɪŋ] – стоящий; полезный
48. per annum [pə(r)'ænəm] – ежегодно; в год
49. gargantuan [gɑː'gæntjuən] – колоссальный
50. emerge [ɪ'mɜːdʒ, iː-] – появляться
51. implement ['ɪmplɪmənt] – выполнять; внедрить
52. capacity [kə'pæsəti] – вместимость
53. joint [dʒɔɪnt] – стыковка
54. ensure [ɪn'ʃʊə, ɪn'ʃɔː, en-]; insure – гарантировать
55. allocate ['æləkeɪt] – распределять
56. awareness [ə'weənəs] – осведомлённость
57. encourage [ɪn'kʌrɪdʒ, en-] – ободрять; поощрять
58. recognition [ˌrekəg'nɪʃ(ə)n] – узнавание
59. consistently [kən'sɪst(ə)ntli] – согласованно
60. prosper ['prɒspə] – процветать

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Find the audio interview, EN-RU translation, links on the website: englishmag.ru/Jago-Keen

