Note: Sections 1-5 are written in bold which is a condensed description. Below is italicized print which has more detailed description which adds interesting details. They can be added to the article as you choose.

1) Can you explain how you got involved in helping to architect and plan Ukraine's energy and building restoration?

A unique combination of my partner and my client.

First, client asked me to look at the most effective way to set up a company to assist in rebuilding Ukraine in a transparent and sustainable way.
As I previously had an office in Warsaw between 1990 and 2005 doing work on a development for the Polish Olympic Committee and other large projects which focused on sustainable building. I knew what it was like to work there after the period of transition just leaving the Soviet Union and becoming independent with a democratic government. Ukraine has the same goals, but the transition is extreme.

Coincidently my partner, Kristin Milward was invited by two theatres in Kyiv to take a one woman play there after it premiered in London and was received very well. It was written by a Ukrainian, Nedda Nezhdana and expressed the voice of Ukraine very well in a way that could be understood in other countries. I organized the traveling and accommodation which was surprisingly complex because of the war. As there were no flight, the best route for us was by train through Warsaw.

Now having visited I have nothing but admiration for the extraordinary resilience, bravery, and determination of the Ukrainians.

I'm familiar with eastern Europe and some of its issues. I was designing a sustainable development incorporating offices for the POC, hotel, retail, gyms, and health located on the Vistula River, Warsaw. It was meant to be progressive, Western, and sustainable. This epitomized the forward thinking from the Soviet era and integration with Europe. I remember the chairman pointing to my modernist progressive looking picture of a river side project in London and saying, "I want one". That was the spirit of integration from Soviet to western. In many ways It coincided with the intention of the Warsaw planner, who coincidently I had first met in 1979.

The building had a planted roof undulating in its riverside siting and using both passive and active energy sources. I've done similar work on the Thames riverside in London and on other sites in the UK, Poland and Canada.
And I also designed an Olympic standard stadium for another city in Poland.

All these things pointed me towards working on the sustainable development of Ukraine.

2) What sort of problems did you see?

I saw how important morale is for Ukrainians. The theatre play was a connection with the west as an act of solidarity. On the streets people carry on as normal, even at night when all the streetlights are turned off. But I was told by most Ukrainians I met feel the constant underlying stress behind their brave exterior.

When I worked in Warsaw I saw the problems in transitioning from Soviet to independent democratic systems. Minor compared with Ukraine at war. But Ukraine has done well coordinating with western counties during that war. It's a good start. The next top mesh with the institutions of the EU and other countries.

I didn't myself see damage in Kyiv, but I saw extensive damage to buildings and towns outside of Kyiv from the period when the area was occupied by the Russians. Most buildings are Soviet era buildings which are not very sustainable. Many need repairing and upgrading anyway, plus repair to bomb damage. I saw this visiting to the town of Borodyanka, with a population of 10-15,000 people, It was one of the most heavily damaged cities near Kyiv during the initial Russian occupation.
Ironically In many cases, Ukrainians have benefited from the existing Soviet era bomb shelters under most buildings. Unfortunately in Borodyanka 40 people died in their bomb shelter in one building alone.
There are measures in Lviv for new-build houses to require bomb shelters which can be lived in comfortably over extended periods of time. Designing for war.

I saw contrasting areas of normalcy and seeming abundance in other shops and towns. It was surreal.

In Boroydanka I saw how important it is to act now. Urgency versus long term planning. This is a problem everywhere.

Initially housing and the power infrastructure needs repairing daily. And later upgrading and made more sustainable as quickly as possible to reduce the burden on the existing power supplies. This needs coordination

at all levels in Ukrainian government and with international agencies and countries. Buildings and neighborhoods and cities need to be designed and built. But in what way? This could be a good example worldwide of sustainable development. In architecture and construction it's quite common to have foreign offices coming into the country working alongside locals, in this case Ukrainians.

Should these apartment blocks in Borodyanka be kept or replaced? Some will need rebuilding in the same way but upgraded and made more sustainably. Some need to be torn down and rebuilt. Should they be kept as high rises or used as low rise alternative designs that use passive design principles. As all buildings should. (See section 4.1below)

Millions of people have left Ukraine, dividing families. I know several who I met up with in Warsaw. I saw Ukrainian refugees in Germany trying to cope with their profoundly changed circumstances and with emotional damage.

I hear about corruption, but I wasn't aware of it during my visit. We know that it is a serious problem.

The Soviet era buildings and infrastructure is a problem. Bombing one part of the system can knockout a whole areas, not just one building. Soviet era housing can use a lot of improving. Many buildings are substandard. They need insulation, better windows, and repaired infrastructure at the very least.

At a personal level I had many minor problems. Firstly, was transportation. There are no airplanes now, so we

needed to travel by train which is much slower. I had to arrange for a safe hotel with a bomb shelter and a backup generator. Although it wasn't a problem for us, the limited electricity and heat is a problem for most people.

Curfews limit travel from about 10pm as everyone must be inside at 11pm. Our hotel staff had to work in shifts of 3-4 days because of that. This affects everyone.

Alert Sirens are nerve wracking for everyone.

There was a checkpoint near our hotel which is a constant reminder that the country is at war. There are many checkpoints on the highways.

This made me think. There is an intrinsic conflict in phasing. It's quicker to rebuild what was there before but not better in many cases. Some temporary prefabricated housing needs to be built as they are quicker and cheaper. They can be designed well and this needs to be a priority or there will be problems later on. Or give people the means to rebuild themselves.

These are people's homes. Property rights need to be considered. This was a big issue in Warsaw.

What alternatives could be rebuilt that offer better neighborhoods? Who is to decide? The high rises are contrasted by small traditional cottages which have a sense of neighborhood. The existing landscaping needs to be replaced where it's damaged, and more planting in private and public spaces. (There is a big problem with air pollution).

Taking this thinking farther, what is best for each settlement or town? In my opinion variety is good. Historical with modern. Small scale and large scale, and in between. Public

and private spaces with more landscaping. In all cases more sustainable. This in itself informs the style of buildings and urban places.
How will what look? Consultation with the residents need to be made. Choices need to be made. Maybe some design competitions will be enlightening.

2.1) *Coal, nuclear, gas can be replaced over time with more sustainable PSPs. (pump storage power) There are one or two PSPs in Dniester. This is one of the greenest large scale source of power. Water flows from a high lake by gravitation through turbines (typically inside a mountain, which is more sustainable). to a lower lake. When cheap electricity is available, typically nighttime surplus electricity is used to pump water up to the top lake reservoir again.*

Who will finance this? I'm not an economist but I know that many agencies are looking at this.

It will help to use solar panels, heat pumps, windmills, and biofuels. They can be built as energy farms or fit into individual housing or commercial units where appropriate. Repairing and adding landscaping will provide cooling in the summer. Trees reduce CO2. More biodiversity. All these reduce the burden on the main infrastructure and can be less susceptible to damage, and easier to fix.

Many are emotionally damaged. Mental health will be a big issue.

It may be cheaper to replace existing buildings with new more sustainable energy efficient ones, lower in height, with more intimate public and private spaces that evoke a greater sense of place. Some people are used to old street patterns and

apartment blocks and others want new innovations. Choices need to be made.

Hopefully, Ukraine will be provided with sufficient defenses to prevent further damage to buildings, such as we saw in Borodyanka. They need to be fixed or rebuilt in a way that makes them more resilient. e.g., using sustainable decentralized heating, upgrade bomb shelters to make them more livable for long periods.

There are very many Ukrainian organizations and business who have started developing green technology. However, transparency is needed. In Poland, in my experience between 1909 and 2005, there was corruption in small ways because people simply didn't have enough to live on. e.g., doctors and others making 400 euros a month and so on. Sometimes it's big scale, which I didn't experience myself in Poland but there are recent cases in Ukraine.

I'm told by a large energy designer that Coal plants have a life expectancy of 25 years, and the existing hydroelectric dams have a live expectancy of 120 years. Nuclear can be replaced by PSPs. (See section 2.1 above) or Geothermal.

3) How did the experience of visiting Ukraine while it was at war impact you?

I was not fearful but humbled. I saw everywhere Ukrainians carrying on as normal, coping and adapting to the aggression and destruction. They dealt with it with considerable grace.

The war does make many things difficult as one would expect. The train from Warsaw took 22 hours, with a 3-4 hour wait at the border because the rail gauges differ and

the war.
It was complicated getting sleeper cars because of the changing time tables. We both needed one as we both have unbelievably bad backs. The train system is quite good although no food or drinks are provided.

Electricity and heating didn't affect us so much, but it did greatly affect most people. Sometimes outside our hotel we couldn't get a hot coffee until 4pm because of the power cuts. But threatened someone's business.

There two different locations north west of Kyiv, Outside Bucha and Irpin where there are piles of cars rusting and riddled with bullets used by people trying to escape. My partner said it looked like the cars themselves were escaping. Now rusting with bullet holes and some still with somebody remains. One pile had artist's paintings of sunflowers on them. There were of course highway checkpoints with soldiers, reminding us that this country was at war.

I saw the first play to be brought to Ukraine from the West written by a Ukrainian, Neda Nezhdana and the solo performance by my English partner Kristin Milward was seen as a real act of solidarity. The Ukrainians I met valued the play and its importance for morale is vital, as is the value of knowing that the Ukrainian's voice is being heard and that Ukrainian's experiences, however grim, are being recognized in the West and responded to. The arts are a spiritual part of life and it is a tool for survival. I see this cross cultural integration across borders as an important part of reconstruction.

In Borodyanka, I saw a couple of young women, looking in their 30s carrying a window into a partially bombed

building. It could have been groceries. They looked so casual surrounded by such devastation. It was a poignant image.

Borodyanka has a mixture of old single story wood houses, low rise stores and offices contrasted by more recent Soviet style high-rise apartment buildings with some shops and offices. The high-rises sustained heavy bombing by the Russians (see pics). They were easy targets.
You can see by the photos how the lightweight curtain walling windows have fallen off and the concrete structure remains. Nearby I saw a statue of the great Ukrainian National poet Taras Shevchenko. in the main square open space, shot through.
It was striking to see how the Russians flew in and destroyed so many innocent poor people's homes. Set beside a statue of Ukraine's greatest national poet, shot through.

We briefly passed through Irpin which had some had similar damage but not so much damage was extensive. It was a contrasting mixture if destroyed building with more expensive buildings still intact.

Our hotel was in the Old Town, beside the security office building so we were secure and had constant electricity and heating. Most others were not so lucky and endured long periods of no heat or electricity and the noise of sirens every day. But they adapted very well. The curfew affected everyone. The hotel staff stayed at the hotel in 3–4-day shifts which they seemed to like because there was constant heat and light, and a bomb shelter in the basement, next to a restaurant.

It was difficult taking photos at times. Often people would react aggressively as they were understandably worried about conspirators. This is not surprising. Even though there was someone with me most times with a large press badge.

In Kyiv, many restaurants were open and serviceable. People needed the work. I occasionally caught glimpses of desperation behind the public smiles. In one case I noticed this in a very good but empty restaurant on a Sunday evening in the city centre.

The constant underlying tension after 5 days wore me down a little so I was relieved to get out. But I miss the courage of the Ukrainians, an example to us all. I carry that with me.

We returned via Germany. While in Wiesbaden we visited a charity run by friends. I was introduced to a number of refugee mothers and children. One mother's experience has stayed with me. She chose to live in a basement flat in Germany with only a few high level windows, having experienced in Ukraine bombing that shatters windows and that living on upper stories of buildings leads to death. This personal experience made me see how important it is to deal with the issue of refugees now and after the war. Many mothers with their families will return to Ukraine, many will stay in Europe, no doubt many men will want to go to Europe as the Poles did. We are so privileged in the West.

I believe all things are connected, theatre, the arts, mathematics, architecture, sustainability. Years ago, I was offered a job with Stanley Kubrik on that principle.

The Ukrainian Railway system was very organized, especially online. But it went offline for a month when the bombing intensified, so I had to use a Polish agent.

Crossing the border at midnight was reminiscent of COLD WAR films. The Polish border guards slammed the door open to collect our passports. The Ukrainian border guards slammed the door open unannounced to give the passports back. The crossing took more than 3 hours which I slept through, and Kristin didn't. I felt relatively safe in Kyiv. The curfews and lack of streetlights was more of a nuisance than it was disturbing, but I saw how Ukrainians refused to be cowed, carried on as normal, zones to whatever was thrown at them, whether it be curfews, lack of heating, or the threat of drones. It was inspirational to me.

A friend, a refugee, traveled to Kharkiv from Warsaw to see her family. She got so stressed that she had to return a little earlier. A 28-hour train ride. I saw how helpful Poles were with Ukrainians.

The reconstruction museum in Warsaw shows the extraordinary resilience of the Poles in rebuilding their shattered Warsaw after WW2. This work was painstakingly and slowly undertaken when the Old Town, Warsaw was restored brick by brick. This was true to a certain extent after the departure of communism which I witness while I was there working in the early 1990's onwards. The comparison between the two cities Warsaw and Kyiv then and now, is particularly poignant. My experience in Poland has given me an understanding of how both macro and micro issues affect the individual can work. The Polish economy was linked to the German economy at a time when Germany was integrating East Germany. Germany's more benign capitalist

economy, different to Russia's experience of the shock therapy-market economy.

English is not spoken everywhere, and the alphabet is different, causing me as a WESTERNER some stress, so I travelled by taxis, which had its own stresses. At least one driver seemed to have PTSD. He broke down screaming and I called my hotel to talk to him which didn't seem to help. We had to leave and call the director of the theatre to pick us up.

As was the case in Warsaw after the war, the population is willingly involved. That is crucial.

4) What are the opportunities to build back green, once the war is over?

The obvious first response is that much of Ukraine now needs to be built back after much of the demolition is already done. In my opinion it will be easier to build back green as it can be incorporated into the large scale of the nationwide project and incrementally by individuals at a small scale. Green technology will reduce the load on the existing infrastructure which generally dates back to Soviet times.

The opportunities are immense. Reconstruction will replace Soviet infrastructure with modern green and sustainable development. Homes, factories. waste plants, agriculture, prefabricated buildings, eco-villages and so on. This will involve Ukrainians collaborating with businesses and specialists from all over the world.

This will help with dealing with corruption. Russia then Ukraine is listed as the two most corrupt counties in Europe.

At the Macro level there needs to be a Master Plan to coordinate overall development and funding and build back green will be at the forefront.
During transition EU standards, laws and guidelines will be incorporated which are compatible with many other counties such as USA, Canada and so on.

Existing dirty large energy plants can be replaced with greener methods such as PSP's. See section 2.1 above. And other large scale power sources. See section 6.1 below.

At the micro level people can be helped with repairing and building their own homes. These can build back green using solar panels, heat pumps, windmills and so on. This will take the burden off the infrastructure. Ukrainians are committed and energetic so this should be effective.

Passive sustainable design, see section 4.1 will be encouraged and will reduce the energy loads substantially. Starting with at least better insulated walls and windows and whatever else is appropriate, then moving towards designing new buildings that respond to orientation, opening sizes, landscaping and so on. This works well in an extreme climates like Ukraine.

Facilities for mental health and hospitals are part of build back green in my opinion. As well as encouraging the sense of community and offering choices.

The immensity of the project will involve great investment. From the EU and elsewhere.

There will be phased sequences of rebuilding and planning. This will have to be determined by Ukrainians working with others.

The threat of war will probably continue so whatever is initially built needs to be easily repaired with locally available products. (Like the window mentioned above). Solar panels and heat pumps could be installed at this time for individual houses, flats, or apartment blocks. More insulation in the buildings. Better insulated windows.

Firstly, rubble has been taken away and recycled. In Ukraine I hear the phrase, “rebuild in a better way”. That could mean adding more insulation, using solar panels and heat pumps, maybe wind power. The power infrastructure needs repair. Cleaner sustainable power plans are needed. These cost a lot at a national level and funding needs to be found.

4.1) Or “” build better” can mean buildings using alternative designs which use passive heating principles. Orienting the buildings so that there are larger openings facing south and smaller openings facing north. Shading can be provided on the south side which, given the seasonal sun angles allows more light in winter and less in the summer. Increased natural ventilation. The use of stone or concrete to store heat until evening. That’s the technical side.

There is a social and psychological side. Lower buildings could be integrated into the landscape have berming, or laying earth against the walls which adds extra insulation, maybe use planted rooves. They can be placed around private and public outside spaces. More landscaping. New Eco villages can be designed and built sustainably with a sense of place, not alienation.

People will be suffering psychologically from the war. They need to feel that they are living in a community.

Air and water pollution caused by heavy industry industries such as steel can be made environmentally cleaner. Ukraine has some of the worst water and air pollution caused by old Soviet industries and practices.
Financial solutions need to be found. There is an opportunity to clean up and use more sustainable energy in steel mills and other traditional industries in their rebuilding.

Historic buildings and landmarks should be retained where possible.

Building codes and laws concerning sustainability need integrating with EU regulations.

A kit of parts can be used for people to build their own homes. Prefabricated homes can be constructed off site and quickly erected. This can be done in a way that emphasizes a sense of communities. A kit of parts can offer variety and different responses to orientation, groupings, infill, family sizes, landscape and so on. An article can be written on just this topic.

Ukraine will need to be stable enough after the war to attract more investment.

5) What new green technologies and building methods could be used to rebuild?

Digital measurement of building usage against zero carbon. Comparing how well buildings are functioning and where to improve them.
Batteries: This is an important innovative expanding industry which can use Ukraine's resources.

Existing Building technologies can be used in a new way.
Promote passive design: (see Hermitage pic) I didn't see evidence of this. I saw a lot of Soviet era building generally using standard plan layouts that didn't take into account orientation, sun and shade or alternative sustainable sources of energy etc. Replant destroyed country and greenery. 1% of Ukrainian cities are green. Kyiv didn't seem to have a lot. Increase green area. Cleaner air.

Geothermal heating. Ukraine has considerable resources to do this. Technologies are being developed that can go down more than 12 km to tap more heat.

Energy Grid: Relatively new building of PSPs (pump storage power) can provide huge amounts of electricity in a sustainable way, 250 MW to 6.4 GW.
Other:
More Planted roofs that insulate. Norway for example has a tradition of this and in many areas in the countryside it is required in planning law.
3-D printed houses. New ways of doing this are being developed. Quick to erect.
Prefabricated building for quick erection on site.
Timber building from sustainable forests. Trees are mostly replaced with one or two species. They must be replaced with more biodiverse planting. The trees can be cut down less intensively. There are alternatives to using heavy machines which damage the soil structure and cause other permanent damage. Ukraine is a huge country with plenty of land to use this way.
Sustainable farming and soils. Overuse of fertilizers pollute lakes and rivers. Mixed use farming with animals for natural fertilizer and aeration of the soil.
Other new materials which are constantly being developed.

Water treatment plants and river heat pumps. I've done this in the UK.

Recycling: "Don't demolish, deconstruct." A lot of war rubble can be sorted out for reusable metal rebars and window frames, bricks, windows still intact,

- **shredded metal** to circulation after remelting.
- **stone residues** are suitable for producing various construction products. E.g., road fillings, which can be used to fill up the holes caused by missile blasts.
- **Fallen trees** are turned into woodchips.
- **Crushed stone** from recycled concrete can be used to fill swamps and pits and create temporary roads.
- **Asphalt** is reused in road construction after being treated at a very high temperature.
- **Rebars** are reused in construction elsewhere.
- Waste in building structures to create **low-grade concrete**.

6) What opportunities do you see for renewable energy and rebuilding the energy grid with renewables?

- The main opportunity is that Ukraine on the back of the war economy can redirect and rebuild into a new sustainable economy.

The ware infrastructure works well. I.e., Ukraine does the work and western countries supply equipment and finance. Ukraine will be a testing ground for sustainable development.

- The world needs to do to meet zero emission standards. This will partially redirect finance into western companies supplying sustainable equipment to Ukraine.

- The momentum of transitioning away from Soviet to democratic/sustainable systems stimulates the market for new infrastructure and sustainables.
- The war is polluting and peacetime need to be sustainable. This can stimulate more innovative solutions. The war shows how Ukraine can coordinate with the west successfully. This can be a model for peacetime.
- Dealing with corruption can stimulate another market for judicial and enforcement services. Refer to the Justice Institute in Vancouver.
- Agriculture is one of Ukraine's biggest sources of exports. New non-polluting and effective agricultural methods can be exploited. Some of these methods require more labour, and work will be needed after the war. And it supports sustainables. Allotments in towns and cities support self-reliance for individuals and communities.
- Ukraine's has many natural resources, minerals etc. that will be used in developing technologies.
- Design and construction services for new cities and infrastructures.

How?

"Nature-based Solutions for Sustainable Cities.
The role of rehabilitation in developing new eco villages, houses, cities etc.
Yet, for all its destruction, the Ukrainian war also presents an opportunity to rebuild the country in ways that could remedy the ills of outdated, Soviet-era urban design and even slash national greenhouse gas emissions.

6.1) Macro:

Hydroelectric: Repairing and using a lot of existing hydroelectric dams now on the Dnipro river.

PSP: (pump storage power) There are one or two PSPs in Dniester. This is one of the most sustainable green large scale way of producing electricity.

Intermediate or temporary: Existing coal and gas power. To be repaired then over time be phased out.
Biofuels. Ukraine has a huge agricultural industry. cereal straw, corn, and sunflower residues can be used. Crops can be grown for this purpose. That raises the question of fuel vs food.
Hydrogen: Ukraine has one of the largest gas transportation systems in the world, which gives it an edge for future hydrogen shipments to Europe. But its grid requires major investment, since it mostly dates back to Soviet times. No Co2.

Natural gas: Ukraine today holds the second biggest known gas reserves in Europe. second only to Norway. Better but not best. Substantially less Co2.
Resource rich. Ukraine has an abundance of natural resources. Metals for high tech industries, agriculture. Uniquely placed for the export market and in the country. Alternative uses can be developed for coal, oil and gas.
Solve corruption. There has been much in the news lately. This is a problem in many countries when there is a large injection of money from other counties. Ukraine has long been one of the more corrupt countries in the international system. In its annual report published in January 2022, Transparency
International ranked Ukraine 123rd of the 180 countries it examined, with a score of 32 on a one to 100 point scale. By comparison, notoriously corrupt Russia ranked just modestly lower, 139th, with a score of 29.

6.2) Micro:
Micro hydroelectric in small rivers.
Heat pumps and solar power for individual houses and large power plants.

Master Plan a Blueprint for green development.
Now, Temporary, Future.

1) Master Planning: Building a flexible planning framework for restoration and rebuilding on national and local levels.

2) Implementing in collaboration with relevant stakeholders and decision makers. Rebuilding. Restoring. Restarting.
3) Surveying:
mapping and assessing both tangible and intangible damage left after the war. E.g., Destroyed buildings, good building stock, Mental health etc.
4) Reclaim:
Developing effective temporary infrastructure for those who have been displaced.
5). Clean up war debris:
Removing, recycling and the war debris. Develop ways the debris can be used.
6) Future change:
Analyzing the current and future trends of how Ukrainian cities and villages damaged by the war may change.
7) Historic:
Working with historic buildings and conservation areas.
8) Planning:
Rethinking the urban and rural planning of the destroyed settlements to make them more resilient, sustainable, and safe.
9) Finance
Balancing the goals of the recovery with available financing

and identifying new financing mechanisms

10. Participation

Involving locals and various other stakeholders to co-create a new vision.

11) Construction

Building the new structures, restoring the old ones, protecting the heritage

12) Critical path; What is essential to do quickly and in the long-term using a variety of methods flexibly.

7) What are your hopes for the future of Ukraine?

Naturally, I hope they have peace and prosperity.

Whatever is built, it should reflect the history and culture of Ukraine.

Ukraine is a focused, energetic, enthusiastic, resourceful population that has a strong sense of nationhood and embraces western values of democracy.
The rebuilding will use their commitment and energy, though the subject of corruption has to be tackled within Ukraine and elsewhere.

I have great hopes that the future for Ukraine will be positive. It will provide an opportunity to implement and catch up with all aspects of sustainability and global warming. Its high-tech digital industry is very appropriate for the age and may mean fewer office buildings going up, which will in turn reduce unnecessary transportation investment.

Ukraine has a huge amount of natural resources which it can exploit and export in sustainable ways. It needs to make the transition from Soviet to EU standards as Ukraine’s air and water is very polluted.

This is also true with agriculture, which is a main export, but fertilizers flow into the rivers and lakes polluting them.

Ukraine has started the process and the country is still transitioning from Soviet era to Western and sustainable. It will continue to align itself with the west, with the aspiration of good democratic government, transparency, innovation and so on.

I hope Ukraine avoids the transitional problems Russia had. Ukrainians have shown how committed they are in defending their country and working with Europe, USA and other nations.

Summary: There are contrasting experiences between Poland and Ukraine, but there are many parallels. Poland was transitioning on many levels towards the EU and the Western countries in general. I used the UK planning guidelines, which the planners in Warsaw were transitioning to. I used German building codes and referred to UK ones, too.
Land ownership was an issue after Communism, as previous owners of property prior to 1948 could contest ownership. We spent a lot of time with lawyers collecting together pieces of land to be used for the Polish Olympic Centre.

Land ownership is now more regulated in Ukraine, as the process has been running for about 10 years. People can own their homes individually or in residential associations. However, there are still some issues to be resolved for the purchase and development of properties by foreign companies. This is evolving.

I experienced some corruption in Poland. It is a country where people's salaries dropped significantly while prices went up, A doctor, for instance, would get £400 a month. People took other jobs to make more money or got creative. People who were used to making do withIN the Soviet Union, improvised in an ad hoc way. We hear of large scale corruption in Ukraine, as well as improvisation at lower levels.

So there will be an interaction of macro large-scale reconstruction for infrastructure, public buildings, hospitals, urban design and so on. This can dovetail with personal efforts, improvisation and innovation, such as building homes, repairing flats, recycling war debris, off grid homes and so on.

Sections 5) & 6) show what investments can be targeted.

A big transitional issue. In my opinion Poland was primarily connected to the German economy within the EU, unlike Russia's transition to the market economy. Germany had gone through a period of deep reconciliation after WW2, within the security of the Marshal Plan. Perhaps Ukraine should follow the stable Polish example, attaching itselv to a stable western economy, as Poland did. It kept Poland's transition stable up until it joined the EU in 2004. Poland has been a great help to Ukraine and the centre of EU gravity is shifting east.
Funding will primarily be through G7 countries, probably lead by the USA. It will provide a big opportunity for investment. All this influx of money needs to be filtered through a non-corrupt transparent route. This will be a

testing period for Ukraine. If it is stable it will greatly benefit and support the transition to a green economy.

Ukraine may need a continuous war economy like Israel, so there are some lessons to be learned there, too.

In the transition during the period of making urgent repairs to buildings and infrastructure, to the macro level, the coal and gas plants will be repaired. Then the development of cleaner sources of energy while also designing and constructing new sustainable developments. \at the same time residents and resident's associations can upgrade existing buildings with new insulation, upgraded windows, solar panels, heat pumps, windmills etc. They can even build off grid. There is an "army" of people available.

The administration of funding WILL need an appropriate system of executive management, with a strong leader. In 17th century Poland, the Sejm - the Parliament - required all members to vote on a unanimous basis, which finally ensured its failure. In London I worked with the London Docklands Development Corporation, which was a enterprise zone that worked very well. It worked because of streamlined planning procedures and strong leadership.

If you have any photos, you'd like to send through that could go along with the article, that would be appreciated.

Pics:

01 Borodyanka, Ukrainian National poet Taras Shevchenko
02 Borodyanka, Ukrainian National poet Taras Shevchenko

03 Borodyanka
04 Borodyanka
05 Borodyanka
06 Borodyanka
07 Borodyanka
08 Highway, Checkpoint
09 Highway, Checkpoint
10 Car Graveyard outside Bucha
11 Car Graveyard outside Bucha
12 Car Graveyard outside Irpin
13 Car Graveyard outside Irpin, sign showing victims driving cars.
14 Car Graveyard outside Irpin
15 Car Graveyard outside Itpin
16 Kyiv, St Sophia's Cathedral, visitors carry on as normal
17 Kyiv, destroyed Russian tanks outside St, Andrew's Church
18 Kyiv, destroyed Russian tanks outside St, Andrew's Church
19 Kyiv, Maidan Independence Square, Looking at victims killed in 2014
20 Kyiv,
21 Kyiv, Carry on as normal.
22 Kyiv, Central Railway Station, going to trains.
23 Kyiv, Central Railway Station waiting room, wood burning stove and a kettle. With wood piles. Sustainable in war time. Lighting dimmed. No street lights.
24 Kyiv, Kristin Milward on stage, In Memory of Darkness,
25 Kyiv, Kristin Milward on stage, In Memory of Darkness,

26 Kyiv, Kristin Milward on stage, In Memory of Darkness,

27 Wiesbaden Germany, Some refugee children meeting after school at charity rooms.

28 Warsaw, brightly light up in Old Town.

29 Warsaw, meeting two (front row) Ukrainians friends who are working. Last met for a day in London. One returned to Kharkiv, Ukraine for Christmas then returned.