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Using Debt for Adaptation Swaps to Support the Reconstruction of Ukraine

The article sets out a conceptual framework for how Debt for Adaptation Swaps may be used to help accomplish several complementary goals in support of the long-term reconstruction of Ukraine. Debt for Adaptation Swaps could improve short-term liquidity for mitigating the most threatening environmental damage to Ukraine as a result of the Russian invasion, while contributing to Ukraine's long-term environmental restoration and economic reconstruction. It examines the potential for linking Debt for Adaptation Swaps to international, compulsory financial compensation claims against the Russian State, as well as internationally sanctioned Russian legal entities or private persons, to secure the long-term funding necessary to fully restore natural capital and reconstruct physical capital. It includes a discussion of the application of international standards of valuation to environmental or economic assets for the purpose of seeking financial compensation.

Keywords: Russian invasion, environmental damage, environmental restoration, valuation, compensation, compensation claims

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Introduction

Ukraine is continuing to incur damage and destruction to its environment, its physical capital assets, its people, social systems, and financial stability. The Government must finance its current budget. The economy has declined significantly and war related expenditures are expected to continue to rise going forward. This has created a difficult financial burden for the State to bear.

As a result, Government debt has risen significantly. In addition to the existing debt burden, the Government must still raise sufficient funds to meet short-and-medium term costs to mitigate the massive environmental damage that is being inflicted on the nation, particularly that which has the most immediate and harmful effects on life. The Government must also fund long-term restoration of environmental systems, and reconstruc-

tion of damaged and destroyed assets necessary for environmental and human health.

Ukrainian Government debt has risen sharply as a result of the war. According to the National Bank of Ukraine [1], the Government has borrowed 585 billion UAH since the introduction of martial law. As of 2 August, 2023, the NBU reports that a total of 333 billion UAH has been borrowed in the first seven months of 2023, indicating that the rate of borrowing is increasing.

Some relief has been granted. Around \$20 billion of debt repayments for 2022 were frozen for two years. This produced 'savings' of approximately \$6 billion in debt servicing. However, this debt was not forgiven, it was postponed to 2024 [2]. Debt restructuring of this type is helpful but ultimately debt repayment that is merely postponed, not cancelled, while new borrowing is increasing, is not financially sustainable.

Going forward, sovereign debt must be restructured and the agreements may need to include some amount of debt cancellation. Such action may prove to be prudent as well as necessary. It may also be prudent and necessary to include a mechanism in the restructuring agreement for a series of Debt for Adaptation Swaps, that could, if properly structured and administered, provide funds for immediate environmental mitigation and long-term restoration, as well providing for the reconstruction of capital assets needed to maintain environmental quality.

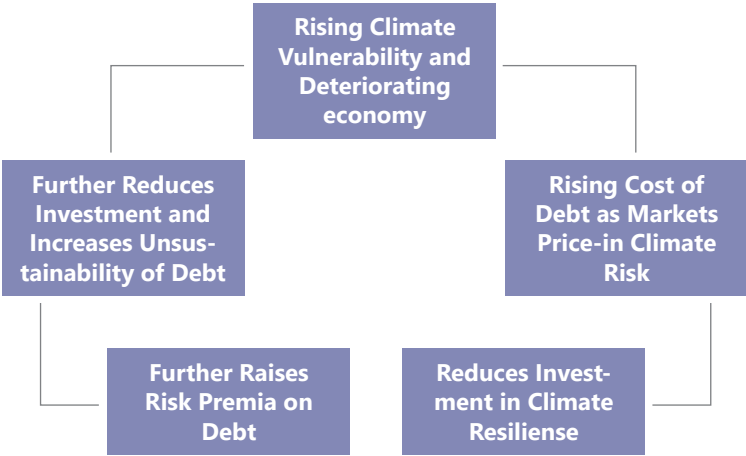
An Adaptation Swap frees up money that can be targeted for specific mitigation, restoration of reconstruction activities. It can complement direct grants from other sources used for similar purposes, and can serve to leverage additional sources of mid-term and long-term financing.

An additional, and novel, source of financing, or collateral to leverage financing, for specific mitigation, restoration, and reconstruction projects, could come from the United Nations sanctioned compulsory compensation charged against the Russian Federation and various sanctioned Russian legal entities and legal persons. This will likely take many years to sort out, which is precisely why it is important to determine now how to access or leverage these funds in support of current financing needs. It may be possible, for example, to create a mechanism that links debt forgiveness to the receipt of future compulsory compensation payments.

The rationale for debt for adaptation swaps

Adaptation Swaps have been proposed globally to help the poorest countries most affected by climate change finance the cost of climate adaptation and resilience projects. In an Adaptation Swap, sovereign debt held by other countries, multinational institutions, and private investors, is cancelled if the money that would have been used to repay debt is instead spent on climate adaptation and climate resilience projects.

These countries are caught in a viscous circle that argues strongly for this form of financial intervention. As illustrated below: markets price in climate risk arising from the deteriorating effect that climate vulnerability has on a nation's economy and this raises borrowing cost and reduces borrowing ability. This in turn makes it increasingly unlikely that investments needed to adapt to the climate vulnerabilities will be made. This in its turn further raises the risk premia on



debt as the economy deteriorates which further reduces investment. All of which creates unsustainable debt burdens.

Ironically, it continues to be the case that countries with the greatest need to mitigate, adapt, and ultimately establish a sustainable development path, are least able to afford it. For a moral and political argument supported with data, see [3].

An IMF analysis [4] sets out certain conditions that, if met, provide economic justification of Debt for Adaptation Swaps. (The IMF analysis uses the term Debt-for-Climate swaps, which is effectively synonymous.) Among these are the expectation that the Adaptation Swap materially reduces debt burden and risk thereby helping to achieve debt sustainability. Coupled with conditional Grants, an Adaptation Swap could expand the fiscal ability of Government to pursue further adaptation and resilience investments.

Successful implementation of Adaptation Projects funded through Adaptation Swaps, will likely expand access to this and other credit mechanisms. Adaptation Swaps can contribute to expansion of fiscal space, and an overall reduction in debt burden and risk, as well as providing immediate financing for mitigation, restoration, and reconstruction investments. These actions can create more sustainable environmental and economic systems.

One recent example suffices to demonstrate the efficacy of Adaptation Swaps as reported in the IMF analysis [4, p. 9] *"Belize agreed to use part of the debt relief to pre-fund a \$23.4 million endowment supporting marine conservation. It also committed to spending \$4.2 million per year on marine conservation and to expand its protected ocean area from about 16 percent to 30 percent by 2026. As a result of the transaction, Standard & Poor's upgraded Belize's sovereign credit rating to B-."*

Implementing debt for adaptation swaps in Ukraine

As of August 2023, yields on 10-yr bonds are 15.11%, the national bank rate is 22% and inflation (admittedly difficult to measure in the circumstances) is around 20%. Ukraine needs to restructure its debt, which is becoming an increasingly unbearable burden, to stabilize its macroeconomy. Cancelling some debt in an Ad-

aptation Swap could very positively impact the macroeconomic situation.

Ukrainian bonds have declined in value since the Russian invasion by up to 80% for some issues at varying points in time [4, 5]. Opportunities to restructure debt, particularly as Green Bonds with longer-terms, coupled with Adaptation Swaps, should be seriously discussed. With bond values having collapsed, this may be a viable alternative for some bond holders.

There is now an opportunity in Ukraine to combine funding support from various sources for the immediate mitigation of environmental damage, as well as long-term environmental restoration, and the required reconstruction of physical assets that support environmental health, public health, and sustainable economic development.

Several challenging issues need to be adequately resolved if Debt for Adaptation Swaps are to be viable opportunities. These include,

- Developing Realistic Adaptation Projects
- Establishing Methods and Procedures for Project
 - › Monitoring
 - › Accounting
 - › Reporting
 - › Transparency
 - › Verification, and
 - › Penalties for Non-Compliance
- Achieving 'Buy-In' from all Stakeholders

The financial and legal mechanisms for creating and implementing Adaptation Swaps are established. In addition, various systems, requirements, and procedures designed to ensure transparency and accountability of expenditure of targeted funds, are also well-established. These can be utilized by national and international stakeholders, with modifications as needed. Adaptation Projects in Ukraine encompass entire natural and economic ecosystems have been destroyed. They are immediately imperative and complex. It is imperative to reduce transaction costs of the Adaptation Swap, as well as reducing the cost and time of meeting all compliance requirements.

Establishing and following well-defined and agreed-upon procedures for transparency and accountability requires cooperation and the application of verifiable trust mechanisms amongst all stakeholders. If this cannot be achieved, then

Adaptation Swaps and mitigation and restoration projects may not be able to go forward. In the event agreements are made and subsequently breached, there needs to be an agreed-upon set of penalties for non-compliance. If properly structured, non-compliance penalties can work to incentivize rather than deter transactions.

Achieving buy-in from private sector stakeholders

For private debt holders, debt could be partially cancelled and exchanged for New Green Bonds. This would require a New Guarantee Facility to ensure adequate mechanisms are in place to guarantee payment of Principal and Interest, and provide for adequate Collateral in the event of bond default. To support the use of Adaptation Swaps, it may be helpful to subordinate general debt service to the Adaptation Swap.

Qualifying projects for debt for adaptation swaps

It must be shown that Adaptation Swap Projects meet clearly defined and measurable sustainability goals. To incentivize the reconstruction of capital assets and restoration of environmental systems, the projects must meet international best-practice standards for carbon emissions, environmental impact, health and safety, and other requirements so deemed.

For example, reconstruction of a destroyed water purification system that treats industrial and urban waste before some of it is released into a wetland ecosystem, should qualify as an Adaptation Project. The damage to the wetland ecosystem, as well as quality and reliability of the urban water supply, can be directly measured. The cost of reconstruction of the water treatment plant, and the cost of short-term mitigation and long-term environmental restoration can also be quantified. I discuss this in further detail below.

By contrast, converting an existing coal-fired power station to natural gas, should not qualify. Coal and natural gas are fossil fuels, and although conversion does reduce carbon emissions, it does not eliminate them. Solar and wind projects should also not qualify, as these sectors have proven profitability, access to global capi-

tal markets for affordable and adequate financing, and are often subsidized by government already. The projects are fine, but the need is not sufficient to qualify for an extraordinary financing mechanism.

Projects must be prioritized. A high priority Adaptation Swap project that should certainly qualify is to finance the reconstruction, in part or in whole, of the Kakhovka Dam destroyed by Russia. The environmental and economic damage is catastrophic and extends over a large area of natural and human ecosystems. There are numerous climate adaptation and resilience features that argue strongly in favor of this as an Adaptation Project, both in the imperative of immediate damage mitigation and long-term restoration of all the interconnected ecological and economic systems. For an in-depth discussion of the damage wrought by the Russian destruction of the Kakhovka Dam, see [6].

Using compulsory financial compensation from Russia to support debt for adaptation swaps

One novel approach that could be employed to finance mitigation, restoration, and reconstruction projects, particularly those that complement funding through Adaptation Swaps, is for specific claims to be made to the United Nations to compel Russia to pay the cost as war reparations for its invasion of Ukraine.

The United Nations General Assembly passed a resolution dated 14 November, 2022, entitled *"Furtherance of remedy and reparation for aggression against Ukraine"*. This resolution specifically recognized the need to establish *"an international mechanism for reparation for damage, loss or injury arising from the Russian Federation's internationally wrongful acts"* (see document A/ES-11/L.6 in [7]).

On 17 February 2023, a *"Register of Damage Caused to Ukraine by Russian Aggression"* [8] was constituted in The Hague. The Register is the first component of a comprehensive reparations mechanism to ensure that the Russian Federation pays full financial reparations for war damage.

The term 'reparations' is legally synonymous with other commonly used terms, such as compensation, restoration, or restitution [9]. Compensation is a financial payment, made volun-

tarily or under compulsion, to an injured party. The amount of financial compensation varies according to asset type and the inclusion or rejection of certain secondary or tertiary factors. It further depends on how these components are valued in money terms. International compensation commissions, or other legal venues, rely upon the Fundamental Principle of Financial Compensation as the theoretical basis for determining compulsory compensation.

The fundamental principle of financial compensation

The fundamental principal of financial compensation is that claimants are entitled to that sum of money which will put them in the same position as they would have been in if they had not sustained the wrong for which they are now receiving compensation or reparation. (McGregor in [10, Section 2–002] is citing (*Livingstone v. Rawyards Coal Co*, 1880) [11] and further cited in (Trenor, 2021) [12]; the latter-cited source contains extensive legal analysis underlying the fundamental principle.)

The principle applies to physical assets such as buildings and infrastructure, as well as environmental assets such as wetlands and forests. In addition, for the sake of equity, the principle of financial compensation must also apply to the damage and destruction of human and social assets as well.

Reinstatement cost and the restoration of utility

The methodology of Reinstatement Cost is useful as a basis of valuation and compensation for damage and destruction of physical assets as it includes all costs that must be incurred to **replace the lost utility** of an asset with a current replacement asset of similar utility. (For further detail and discussion see, for example, [13] and [14].)

Reinstatement cost is directly calculatable for most types of physical assets, such as a typical apartment building or a bridge. Replacement cost for tangible assets cost can be directly calculated using well established valuation standards and methodologies (see for example *IVSC.org* at <https://www.ivsc.org/> and *AI Appraisal Institute.org* at <https://ai.appraisalinstitute.org>).

Compensation is more problematic for certain types of environmental infrastructure assets, such as water purification systems, or natural ecosystem assets such as wetlands or forests. The Reinstatement cost of a destroyed physical asset in the form of a water purification system with one of similar utility can be directly calculated. However, replacing a physical water purification system does not compensate for the damage already done to the ecosystem into which purified water would normally have been discharged. (For a full discussion of valuing physical assets to meet international standards of evidence and valuation, see [15]. For a full discussion of the valuation of natural ecosystem assets see [16]).

Full compensation for the reconstruction cost of the water purification plant (a physical asset) should include all relevant costs incurred prior to and including the cost of asset reconstruction. These may include such costs as pre-construction preparation costs (including, for example, design and permitting costs), demolition, debris removal, demining, temporary protection costs, removal of hazardous or contamination material, immediate environmental damage mitigation, and the effects of exchange rate fluctuations and inflation during the period from pre-to-post reconstruction as well as all required taxation.

In the case of a destroyed water purification system, encompassing the physical plant and the wetland, full restitution requires including the addition costs to remediate the short-term damage suffered by the ecosystem during the period from the date of destruction of the water purification system up to the date at which a new water purification system is placed into operation. Furthermore, the damaged ecosystem may likely require long-term expenditures to fully restore the ecosystem to its condition (its prior utility before destruction). The amount of long-term restoration financing to sustain the wetland must be interpreted as a minimum rather than a maximum goal of the restitution itself.

Reinstatement costs may also include, for example, demining or detoxifying privately owned farmland, or a public park adjacent to the wetland land, that are unusable and contributing directly to contamination of the wetland or to a degradation in the quality of urban water supply. Replacing the lost utility of these interrelated and symbiotic systems requires committing sufficient financial resources to achieve a com-

plex and long-term restoration and reconstruction solution.

A holistic sustainability framework for restitution recognizes that physical assets do not exist in isolation of social infrastructure or environmental ecosystems. Restitution through financial compensation for replacing a destroyed water treatment plant with a physical asset of similar utility located in an environment that has suffered significant damage to its natural ecosystems, or whose urban public health systems have been qualitatively degraded, would fall well short of an equitable solution.

Recommendations for further research

This article has set out a qualitative analytic framework within which to evaluate the efficacy of using Debt for Adaptation Swaps to expand the fiscal space of the Ukrainian government to meet some of the staggering costs to mitigate, restore, and reconstruct environmental ecosystems and related physical assets destroyed by the Russian invasion. A novel approach is proposed to use compulsory financial compensation from Russia, via established legal mechanisms, to leverage financing arrange through Adaptation Swaps.

Further research is needed to determine financial parameters related to the amount of potential debt that could be subject to Adaptation Swaps and the amount of funding that could potentially be freed up; developing a priority list of Adaptation Projects that would meet strict sustainability criteria; ensuring that all valuations of physical and natural assets within Ukraine meet internationally recognized standards for use in Adaptation Swaps as well as for submission of international compensation claims; ensuring that systems for monitoring, reporting and auditing are in place to support Adaptation Swaps as a funding mechanism; and other related topics.

Time is of the essence, and it is incumbent upon all stakeholders, public and private, to work expeditiously toward the goals discussed in this article.

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Томас П. Р.

Використання адаптаційних боргових свопів для підтримки відновлення України

У статті визначено концептуальні засади того, як можна використати адаптаційні боргові свопи для досягнення кількох взаємодоповнюючих цілей, спрямованих на підтримку довгострокового відновлення України. Адаптаційні боргові свопи можуть покращити короткострокову ліквідність для пом'якшення найбільш загрозливої екологічної шкоди, завданої Україні внаслідок російського вторгнення, і водночас сприяти довгостроковому відновленню довкілля та економічній реконструкції України. Автор вивчає потенціал зв'язку між адаптаційними борговими свопами та міжнародними, обов'язковими позовами про фінансову компенсацію до російської держави, а також до російських юридичних і фізичних осіб, які перебувають під міжнародними санкціями, з метою забезпечення довгострокового фінансування, необхідного для повного відновлення природного капіталу та реконструкції фізичного капіталу. Стаття також розглядає застосування міжнародних стандартів оцінки до екологічних або економічних активів з метою отримання фінансової компенсації.

Ключові слова: російське вторгнення, екологічна шкода, відновлення довкілля, оцінка, компенсація, позови на фінансову компенсацію