



EUDR ANALYSIS

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Observations on the traceability requirements of the European Commission regulation on deforestation-free products

Background

This report analyzes the traceability requirements of the new European Commission regulation on the import or sale of deforestation-free commodities on the EU market. We focus mainly on palm oil (especially in Indonesia) and offer a view on feasibility of applying Articles 9 and 10, which define the traceability and deforestation-free requirements of the regulation. The review also takes into account criticism already put forward in multiple venues that these requirements would: (a) be too costly, (b) divert investments away from capacity building for suppliers and support for smallholders and into traceability systems without having much impact at the deforestation frontier, (c) change the way commodities are traded and managed along global supply chains, and (d) cut out smallholders from global supply chains.

We suggest that, taken together, Articles 9 and 10 present serious challenges in relation to (1) collecting the data required for substantiating origins of palm fruit (which is lacking for much of the upstream), and (2) dealing with the aggregation of mixed-origin materials, an intrinsic feature of palm oil supply chains in Asia, which will impact the downstream economy. Aims of the regulation are worthy, and obtaining and managing the flows of data envisaged is theoretically possible if a systematic, stepwise phase-in were pursued over multiple years. However, it's not feasible to expect requirements to be implemented fully in the very near term, without risk of (a) hardening the segmentation of palm oil supply chains into "clean" oil destined for the EU vs "tainted" oil for elsewhere, (b) partially diverting funding away from sustainability investments towards traceability as an end in itself rather than a means, and (c) excluding small producers from EU-destined supply chains. These points are discussed more fully in five parts:

- Cut-off dates for deforestation
- Note on provisions of the draft regulation most germane to the review
- How palm oil supply chain structure presents challenges for compliance
- Reaction to critiques made elsewhere
- Pros and cons of the regulation

Cut-off date for Deforestation

The cut-off date for allowable deforestation under the regulation is 31 Dec 2020. This means that production linked to deforestation prior to 2021 is not at risk of non-compliance with the regulation. Given that we are in 2023, this makes the regulation largely forward looking, not backward, in that it seeks mainly to prevent future deforestation linked to commodity production. In practice, this means that all production areas planted by the end of 2020 is, by definition, compliant with deforestation criteria of the regulation, irrespective of its potential link to deforestation. It also means that, as of today, >99% of all palm oil planted in Indonesia is, by definition, compliant with this provision. The challenge, therefore, will be to show that, over time, the country, or sub-regions of it, do not experience palm oil driven deforestation post 2020. In some regions of Indonesia, this would be quite easy; in others, it will present practical challenges.

Also notable is that the end-2020 EU cut-off is more liberal than the end 2015 cut-off established in mainstream No Deforestation, No Peat, No Exploitation (NDPE) commitments set by the majority of buyers, traders and processors of palm oil. Few companies appear to have met this target by the end-2020 date envisaged, but they have retained end-2015 as a reference point to evaluate past performance of suppliers and, in some cases, required recovery programs to compensate for deforestation post-2015. The main take away from this is to be aware that (a) the regulation defines a much larger window for allowable deforestation compared to corporate NDPE norms, and (b) as of today, the regulation is mainly forward looking in its aim to decouple EU market demand from deforestation. This fact does not simplify the traceability requirements of compliance (Article 9, below), but it does simplify compliance with its deforestation criteria (Article 10), at least in the near term.

Provisions of the draft regulation germane to this review

Articles 9 (especially) and 10 are the focus of this review, but there are six provisions in the regulation that define the main requirements relevant to traceability and compliance.

- Article 8 – Due Diligence Requirement
- Article 9 – Information Requirements
- Article 10 – Risk Assessment
- Article 11 – Risk Mitigation
- Article 12 – Simplified Due Diligence
- Article 29 – Country Risk Classification
- Article 30 – Bilateral Cooperation (to promote compliance)

Article 8 spells out three steps in a mandatory due diligence (DD) process: (1) information collection, (2) risk assessment to determine risk of non-compliance, and (3) risk mitigation measures to eliminate any determination of risk of materials linked to deforestation post-2020. All three steps must be completed for materials to be eligible for sale in the EU.

Article 9 defines specific information requirements of any shipment of materials into the EU. Of special note under Article 9 is the outline of details on raw material origins required for each shipment, including geo-located traceability data back to the individual production unit.

Article 10 spells out the required analysis of information gathered under Article 9 to make a determination of risk of deforestation linked to a raw material source.

Article 11 defines required risk mitigation procedures that must be taken to ensure no deforestation or “negligible risk” sourcing of materials. It includes risk management practices, reporting, internal controls and independent auditing.

Article 12 defines conditions under which importation requires completion of Article 9 (information collection) but not Article 10 (analysis and mitigation). Most notably, Article 12 states that when a country is classified as Low Risk under Article 27 (below), full traceability is still required, but simplified due diligence can be applied.

Article 29 spells out a system for determination of *low*, *standard* or *high* deforestation risk for a country or sub-region therein. This determination is to be completed by competent authorities in the EU. It seems inevitable that, to start, Indonesia and Malaysia as a whole would be classified as High Risk, which makes imports from these countries subject to measures outlined in the

regulation. There is a provision for sub-regions to be classified differently from the country as a whole, and it's probable this would apply to parts of Indonesia or Malaysia, but it's not explained how this procedure will be applied. Even if a sub-region meets requirements for Low Risk, full traceability requirements under Article 9 still apply.

Article 30 spells out types of bilateral cooperation between the EU and producer countries that could be interpreted as mitigating risk (at national or sub-national levels), which could lower the risk designation and/or permit the simplified due diligence spelled out under Article 12. Here again, the traceability data required under Article 9 would still apply.

The main take away here is that under all scenarios defining country level risk, full traceability requirements defined under Article 9 will apply, and under most likely scenarios applicable to Indonesia, the risk assessment (Article 10) and risk mitigation requirements (Article 11) will also apply. Cooperation activities under Article 30 could emerge to lessen requirements under Article 10, as could determinations of sub-national risk under Article 29. But obligations for establishing full traceability under Article 9 will hold in all scenarios.

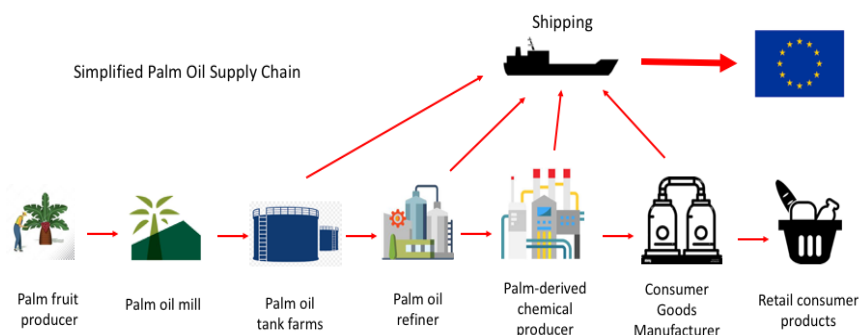
How palm oil supply chain structure presents challenges for compliance

The structure of the palm oil supply chain in Asia presents serious challenges for compliance with the regulation. We discuss this in two parts: (a) the upstream (from farmer/producer to mill) and (b) the downstream (from mill to consumer). This division reflects the fact that while upstream and downstream segments will both face challenges for compliance, the challenges they face differ in important ways that should be understood. We first describe supply chain structure and then make observations for how this will present challenges for compliance. We begin with the downstream segment of the supply chain.

Downstream supply chain

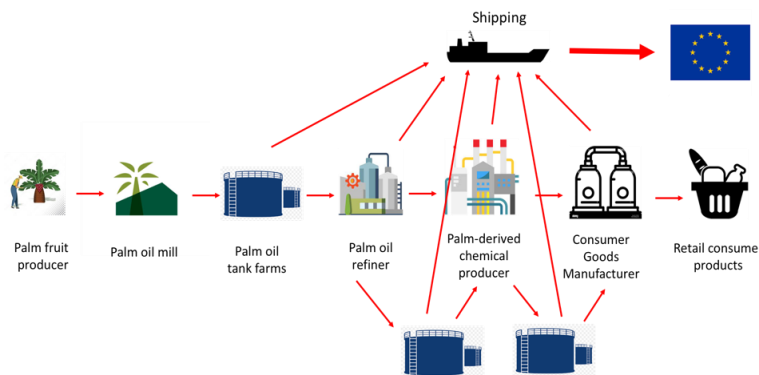
To assess the feasibility of meeting traceability requirements of the regulation, it's first necessary to understand the overall structure of the palm oil supply chain from producer to the point of importation into the EU. This is because one needs to understand where aggregation happens along the supply chain, both upstream of palm oil mills (where fruit production happens) and downstream (where materials are processed, aggregated and traded). A simplified supply chain structure is shown below. In the first three steps it depicts palm fruit producers who supply to mills, mills who process fruit to extract oil, and buyers who store oil in tanks. Oil is then transferred to

either an exporter ("shipping" in the diagram) or to a refiner, who sells refined products to an exporter (shipping) or to a specialized chemical



producer. The chemical producer processes refined products into new compounds, which are either exported (shipping) or sold to product manufacturers (food or non-food, consumer or industrial), who in turn export these products or sell them directly to customers in local markets. From this simplified diagram, it can be seen there are four points along the supply chain where materials could be exported to the EU and thus subject to requirements of the legislation: (1) CPO from tanks; (2) refined products from a refiner; (3) specialized chemicals from a chemical producer; or (4) a consumer or industrial product.

Critically, the diagram also shows one of the earliest points of aggregation that happens, namely at the point oil is sourced from a mill and then aggregated in storage tanks. Such tanks often mix oils that come from numerous mills, depending on the number and size of tanks and physical logistics of how oil is stored for onward sale or refining. Since it's impossible to determine which mills contributed to an oil shipment drawn from a tank where oil has been aggregated, this means that under terms of Article 9, oil exported to the EU from this point would have to prepare traceability data for all contributing mills during the relevant period.



In reality, the situation is more complicated than the diagram above, as shown in the modification here. There are two more points of aggregation in the supply chain. One is the aggregation of refined palm oil derivatives (POD) by *traders*, who aggregate PODs from multiple refiners

for onward sale, or by *chemical producers*, who buy, aggregate and store PODs for processing. The second point is the aggregation of specialty chemicals by *traders*, who aggregate chemicals from multiple chemical producers for onward sale, or by product manufacturers, who aggregate and store chemicals for incorporation into products. The first point of aggregation of PODs combines the products of multiple refineries, all of which source oil from dozens or more mills. The second point of aggregation combines chemicals that come from multiple chemical producers, who sourced from multiple refineries, who in turn source from multiple mills. Finally, for completeness, we make a minor addition to the diagram, showing that materials can, in fact, also be exported to the EU at these two points of aggregation, either (i) post-refiner (PODs) or (ii) post-chemical producer (as specialty chemicals).

This complex structure of the downstream supply chain highlights at least two main challenges. **The first is aggregation.** Mixing and bulking of materials is widespread in palm oil. It happens for reasons of efficiency, scale and basic logistics. Articles 9 and 10 require full knowledge of the origins (down to farm) and deforestation free compliance for all materials placed on the EU market. This means aggregation must be addressed, at least in cases where the risk of non-compliance is non-homogeneous among suppliers. As the diagram shows, the further downstream in the supply chain one sources materials, the more mixing takes place. This raises three questions:

- What happens when downstream materials contain a mix of compliant and non-compliant sources?

- If a Mass Balance (MB) pathway were allowed, at least in the interim, this would allow trade in processed materials of mixed origin with mixed compliance status. MB is not permitted, however, under the regulation.
- In the absence of MB pathways, it's likely that trade in EU compliant oil will require the formation of segregated, dedicated supply chains (beginning at the mill), maintained specifically for the purpose of supplying EU markets. This will be feasible for some who intend to supply EU markets, but not all. It will also limit the impact of the regulation to drive sector-wide change.

It has been possible to create segregated supply chains for batches of higher value products, e.g., RSPO SG oils or ISCC materials destined for certain uses. The higher costs arising from segregation are offset by higher prices, but this won't likely apply to bulk commodities traded at scale. Also, these segregated deliveries occur at volumes representing a fraction of overall trade in palm oil to the EU. If segregated, EU compliant oil is not traded at a premium, this suggests that a complete re-work of supply chains to prevent aggregation will be feasible only where large volumes of compliant oils can be sourced and aggregated in close proximity, limiting cost implications. This could give rise to the formation of regional production hubs, where EU imports are sourced from sub-national regions deemed negligible risk, and where all such materials are deemed compliant. This would address Article 10, but not challenges of Article 9 compliance, which still requires full traceability (see below under Upstream).

In addition to driving segregation, aggregation massively expands the magnitude of traceability data collection (Article 9), analysis (Article 10) and management (Article 11) required for importers who source downstream products. Put simply, the further down the supply chain one sources materials, the larger the upstream footprint embodied in those materials, and the larger the volumes of traceability data required. Aggregation prevents linking specific volumes of processed materials to specific mills in the upstream, even when such volumes are small. This means technical challenges for compliance will necessarily become more difficult as one moves down the supply chain, because one must be able to demonstrate deforestation free status of more and more mills linked to the supply chain of the product. It's possible, of course, that information requirements of Articles 9 and 10 could be collected for all mills feeding into a supply chain, and that all such information will flow down the supply chain along with the materials traded (e.g., from mills to refiners to chemical producers). However, this depends first on developing an information architecture shared by all parties throughout the supply chain, and second, on the ability of all mills to gather all such information fully in the upstream.

Will mills be able to collect all this information in the upstream? We examine this question below.

Upstream supply chain

The upstream supply chain (from mill up to producers of fruit) introduces further challenges for compliance for most palm oil mills. It will be extremely difficult for most mills to meet data requirements, especially where independent farmers dominate the production base.

Mills are supplied fruits by three types of suppliers:

1. **Plantations** owned by the mill itself or by 3rd parties

2. **Organized farmers**, as cooperatives or plasma farmers, often associated with mills
3. **Third party traders/aggregators** that buy fruits from farmers and on-sell to mills

Mills differ in their reliance on these supplier types. At one extreme, mills are supplied 100% by their own plantations, with no farmers or outside 3rd parties. At the other, they're supplied entirely by 3rd party aggregators. In the former, suppliers are few, readily identified and easily contacted, making compliance straightforward. In the latter, supplying producers might number 10,000 or more over the course of a year, most of whom are anonymous, presenting serious challenges for compliance. Most mills are supplied by a combination of supplier types, with the particular mix depending entirely on a mill's individual circumstances. Further, this might change over time as a mill acquires or sells production assets, replants aging plantations, or expands the processing capacity of a mill.

Large plantations present no challenge for information requirements of Article 9. Organized farmers (typically) associated with mills are easily located and, though numerous, could provide the information required under Article 9. Aggregators who buy and sell fruit produced by farmers, however, present significant challenges for compliance.

The structure and dynamics of supply chains connecting independent farmers and mills is complex, informal and non-transparent. In its simplest form, it includes four actors: farmers, middlemen or ramps as aggregators, and mills. **Farmers** vary markedly in size and scale of their farms, with some farmers owning one farm of ~2ha in size while others own multiple farms covering 20-30ha or more in total. Most farmers sell fruit to one or more middleman, who collect farmer fruits, but some farmers have their own transportation and deliver fruits themselves either to middlemen, ramps, or sometimes directly to mills. **Middlemen** are mobile aggregators who move throughout the landscape and typically source fruit from 30-100+ farmers (depending on operational size) and, in turn, sell fruits either directly to mills (typically 2-4 mills) or to nearby ramps (typically 2-4 ramps), depending on price and other factors. **Ramps** are stationary aggregators, who source fruit from dozens of middlemen or farmers on a typical day, and aggregate, sort and then transport fruit to mills. Ramps are large operations capable of transporting fruits >100km to a mill, and they sell fruits to a large number of mills (often 10 or more).

This structure of the upstream supply chain means that a mill supplied mainly by aggregators is potentially linked to 100s of farmers on a given day, delivered to the mill by dozens of middlemen and ramps. But the supply chain is dynamic, with farmers, middlemen and ramps varying the sale destination of fruit based on daily price offerings and other factors. In a densely cultivated area with multiple processing facilities, an individual farmer's fruit could be delivered to any of up to 30 mills or more.

This hyper-dynamism means that for mills supplied mainly by aggregators, the total number of farmers potentially linked to a mill could exceed 10,000-15,000 over a one-year period. This is especially true where mills compete for fruit, and aggregators show limited fidelity to mills.

A further challenge to traceability in this highly dynamic system is the absence of formal documentation for most of the first mile transactions between farmers and middlemen or ramps. Lack of documentation means it's not possible for most mills to trace back third party

fruits to the farmer of origin until new, more formalized, transaction-based systems are put in place to link fruit deliveries at the mill gate to the farmers who supplied them. There are digital solutions being piloted as part of technology-based efforts to formalize the highly informal palm oil fruit trade,¹ but such technologies are not yet well established.

Given the above, for mills relying heavily on aggregators, such mills: (i) receive fruits from 100s of farmers on a given day, and 1000s over a year, (ii) have limited knowledge of the farmer identities, and (iii) have limited data trails to draw upon given the informal nature of first- mile trades. In Indonesia, this situation would apply to most mills, at least in part, raising key questions about feasibility of complying with Article 9. Among them:

- Must mills collect all the information required by Article 9 for *all farmers* potentially linked to their mills over the period of concern?
- If yes, what technology will be used to achieve this, given the hyper-dynamism above?
- Or, is it likely that, instead, mills will identify and account for a static number of farmers deemed sufficient to have supplied the third-party fruit the mill processed over a given time period? This could meet the letter of the law but not its spirit.²
- Where negligible risk maps are available, would it be more practical to trace fruit origins back to village or other administrative unit, where all producers within it present low risk, rather than tracing to the individual farmers within it?
- What will happen to mills that can meet Articles 9 and 10 for only part of their supply base? E.g. where plantations and associated farmers are known, but for aggregator volumes are a work in progress. Would all aggregator volumes be treated as non-compliant until data are available for all? Would all oil from such a mill be treated as fully non-compliant?
- Most mills will likely have a three-part profile, which could change over time as more data are collected: % compliant, % non-compliant, % not known. Here, “non-compliant” has traceability data (Article 9) but fails the deforestation test (Article 10), whereas “not known” has no traceability data to conduct the tests under Article 10.

Reaction to critiques made elsewhere

(a) “These requirements would be too costly”

Meeting the proposed requirements will be extremely costly – for the industry as a whole. It will require upstream traceability data collection that, for most mills, does not currently exist, using technologies that are not yet mainstream. It will also impose new costs in the downstream to deal with the bulking of materials of known/unknown origin and/or compliance status. Whether this will be “too costly” is a subjective statement and it depends on: (a) whether a market premium will be paid for materials that meet compliance requirements, and (b) what sustainability impact is achieved through implementing the regulation. Since the regulation is

¹ For example, PemPem at <https://www.pempem.io/>

² <https://www.pempem.io/news/how-can-the-new-eu-regulation-achieve-deforestation-free-supply-chains%3F>

largely forward looking in its prohibition of deforestation (post 2020), the scale of impact will depend on how it helps to mitigate future expansion into forested areas. This might hold for segments of the producer base, but decision making in these segments is already governed by voluntary NDPE pressures, which have contributed to reducing deforestation already. Farmer level decisions will not be influenced by the regulation, not in the near term, so one could speculate that the overall sustainability impact of compliance will not outweigh the costs. Based on the above, it seems reasonable to assert that compliance will be too costly.

(b) “These requirements will divert investments away from capacity building for suppliers & farmers into traceability systems without impacting deforestation at the frontiers”

Given the complications of upstream data collection and downstream aggregation, it’s clear that supply chain innovation and new data collection tools are needed to enable compliance. It’s also clear that costs will be significant. What’s not clear is who will bear the majority of these costs. As a result, it’s hard to evaluate the claim that compliance measures will divert funds away from sustainability and into traceability. To begin, who will bear these costs? Looking at the upstream first, the information requirements under Article 9 will likely be borne mainly by mills and possibly their direct buyers committed to sustainability who will have an interest in placing oils on the EU market. The probability of mill spending on traceability crowding out money they would have spent on farmer engagement seems low, since few mills are spending much money on this today (outside the large, integrated players). However, there is a chance that, for large producers, especially integrated ones, traceability will crowd out spending on farmer support programs, since such mills are important sources of funding for such programs today.

Looking at the downstream, concern over crowding out seems more justified. Buyers and actors downstream from them are non-trivial sources of funds for a wide range of sustainability programs aimed at farmers, smaller (less progressive) mills, landscape/jurisdictional programs, and sector wide initiatives on social accountability. If these actors were required to make significant supply chain investments purely for compliance purposes, then it’s possible compliance will crowd out these impact-oriented sustainability investments. This might apply especially to direct buyers, who are most likely to feel pressure to participate in cost sharing of both upstream and downstream changes.

If most companies opt for a segregation approach to creating EU compliant supply chains, this will dampen the likelihood of traceability spending crowding out sustainability investments, except in cases where segregation entails significant material costs.

(c) “These requirements would change the way commodities are traded and managed along global supply chains”

This would seem objectively true, especially for downstream segments. As mentioned, there is precedent for building segregated supply chains to supply global markets for sustainable palm oil, but these are niche products sold at higher prices and traded in smaller batches barely relevant to global supply chains. Creating segregated supply chains that allow for the purchase, trade, bulking and export of EU compliant oils at scales relevant to global trade is theoretically possible but it would require a new, more costly form of logistics than what prevails today. It’s worth pointing out that if large geographic areas of countries such as Indonesia were designated low risk for deforestation at the sub-national level, this would make it possible for a regionally distinct sourcing areas to form, within which the conventional practice of bulking materials of mixed origin is allowable up to the port of export. In this scenario, all materials upstream from

the port are, by definition, compliant with deforestation requirements (though traceability requirements of Article 9 would still apply). This could allow for less dramatic changes in supply chain structure to take place, but it's not clear if/where this would apply in Indonesia.

(d) ***“These requirements will cut out smallholders from global supply chains”***

One has to be careful in evaluating this statement. To begin, it should be rephrased as: *“These requirements would cut out smallholders from EU destined supply chains.”* Further, one needs to evaluate this claim based on assumptions of how the regulation will drive sector wide change. That is, given the relatively small size of the EU market compared to other markets, much of industry might pivot toward selling into non-EU destinations. This will dampen pressure for mills to comply and thus any risk of smallholder exclusion resulting from compliance with Article 9.

That said, it is possible that a vigorous approach to compliance could lead to exclusion of smallholders from local supply chains destined for EU markets. This would arise from inability of mills to implement a cost-effective traceability solution to the hyper-dynamism of smallholder dominated supply chains. Where this holds, mills might opt instead to cut smallholders from their supply base and source from more readily traceable producers. For this to occur, however, mills must face serious pressure for compliance from (a) buyers that want to create EU compliant supply chains, (b) investors/banks that seek to use EU compliance as an instrument to mitigate ESG risk, and (c) mills would need a ready supply of traceable sources at a market price. The likelihood of all these factors holding seems moderate to low.

Longer term, it's also possible that acquiring the traceability data required under Article 9 will become easier, as more digital solutions targeting rural supply chains come on market. This will further reduce risk of smallholder exclusion based on lack of traceability data, though this would not reduce the burden of compliance with Article 10 on deforestation.

Pros and cons of the proposed regulation

Finally, we close with a bullet point list of pros and cons we see in the future.

Pros

- More transparency and traceability in the upstream supply chain is desirable
- EU requirements would create a compliance driver for increasing transparency
- Such demand will help drive innovation to create cost effective approaches for traceability, especially digital solutions aimed at first mile (farmer) users
- It could also drive innovation for scalable, cost effective tools for farmer engagement
- EU compliance could strengthen the business case for sustainability if market rewards ensued
- EU compliance could trigger regionalization of supply chains, creating a driver for improved jurisdiction wide performance in relation to supply chain transparency and deforestation

Cons

- Upstream compliance will be extremely challenging to achieve in smallholder dominated supply regions, until such time that cost effective, scalable tools become widely used.

- It will be extremely expensive to address supply chain aggregation in the downstream supply chain, and the net impacts on sustainability might be too limited to justify the costs.
- It seems likely that some (possibly most) companies will pursue supply chain segregation approaches to EU compliance, which will sharpen the segmentation of palm oil into “clean” vs “tainted” supply chains.
- This will diminish potential for the regulation to drive sector wide change.
- Many producers, traders, processors might disengage from the EU market, looking instead to Asia and the Middle East for signals of market demand that inform their investment decisions
- The regulation could serve to intensify the global north vs south polemic on palm oil, again with limited long-term net positive impact on palm oil driven deforestation, which is at its lowest levels in two decades.

If you have further questions, please do not hesitate to contact us:

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