

Guest Post: Spotlight on Syria's Biological Weapons

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Last fall I had the pleasure of going to the University of Hamburg at the invitation of the [Research Group on Biological Arms Control](#) to give a presentation on open source analysis for nonproliferation research. My colleagues there—Gunnar Jeremias, Mirko Himmel, Tomisha Bino, and Jakob Hersch—have been working on a very interesting project assessing Syria's biological weapons capabilities. I think the wider community might be interested in this research, and when Gunnar suggested a guest post that other analysts might comment on, I happily agreed.

Spotlight on Syria's biological weapons

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When talking about Syria's bioweapon arsenal... Wait a minute. What? Wasn't it all chemical? Indeed, more than two years after the chemical attacks on Ghouta in 2013, the subsequent entering of Syria into the Chemical Weapons Convention (CWC), and more than a year after the destruction of Syria's Sarin nerve agent stockpiles and its precursors under multilateral and multi-media supervision, chemical weapons are still an issue in Syria. Chlorine filled barrel bombs released from helicopters are frequently used as weapons of terror most probably by the Assad regime, and ISIS forces seem to have used mustard munitions.[1] This sad record is too large already, but it seems as if more entries have to be added: Not only are the doubts that Syria might not have declared its complete CW program expressed quite openly by many official sources – there are even hints that point to the presence of biological weapons in Syria, too. There was almost no reaction from the general public or the epistemic community when on 14 Jul 2014 Syria declared its ricin program. A declaration that included the existence of production facilities and stockpiles of purified ricin. Quite a number of documents by the UNSC and OPCW that have been made public touch upon this issue. However, the initial declaration was not made public.

Date	Doc no., relevant page	Summary
14 July 2014		"Al-Maliha" ricin production facility declared as a result of the work of the Declaration Assessment Team. No related document found in open sources.
12 September 2014	EC-77/P/NAT.2	Syria's detailed plan for the destruction of the "Al-Maliha" ricin production facility.
27 October 2014	S/2014/767	(b) On 12 September 2014, the Syrian Arab Republic submitted a detailed plan for the destruction of the "Al-Maliha" ricin production facility (EC-77/P/NAT.2, dated 12 September 2014) that was declared on 14 July 2014 as a result of the work of the Declaration Assessment Team. The plan was noted by the Council at its Seventy-Seventh Session (paragraph 6.12 of EC-77/4, dated 10 October 2014).
19 November 2014	EC-M-46/3	Item 4.: The Council considered and adopted a decision on the combined plan for the destruction and verification of the "Al-Maliha" ricin production facility in the Syrian Arab Republic (EC-M-46/DEC.1, dated 19 November 2014), in the context of a Note by the Director-General on the same subject (EC-M-46/DG.2, dated 27 October 2014).
19 November 2014	EC-M-6/DEC.1	"Decision: Combined plan for the destruction and verification of the "Al-Maliha" Ricin production facility in the Syrian Arab Republic" - Initiating a verification inspection: Recalling that the Secretariat has not completed an initial inspection of the "Al-Maliha" ricin production facility as required by paragraphs 43 to 47 of Part V of the Verification Annex; Hereby: Requests the Secretariat to carry out the initial inspection required by Part V of the Verification Annex prior to implementation of any portion of the detailed plan for destruction (EC-77/P/NAT.2); and Agrees to the detailed plan for destruction (EC-77/P/NAT.2) and the proposed measures for verification (Annex to EC-M-46/DG.2), which together constitute the combined plan for the destruction and verification of the "Al-Maliha" ricin production facility.
28 November 2014	S/2014/853	(b) As reported previously, on 12 September 2014, the Syrian Arab Republic had submitted a detailed plan for the destruction of the "Al-Maliha" ricin production facility (EC-77/P/NAT.2, dated 12 September 2014) that was declared on 14 July 2014 as a result of the work of the Declaration Assessment Team. At its Forty-Sixth Meeting, the Council considered and adopted a decision on the combined plan for the destruction and verification of the facility (EC-M-46/DEC.1, dated 19 November 2014), in the context of a Note by the Director - General on the same subject (EC-M-46/DG.2, dated 27 October 2014)
After that	No document	No mentioning of Al-Maliha or Ricin in any of the subsequent documents (such as the reports on progress in the Elimination of the Syrian Chemical Weapons Program that comes roughly once a month)

There have been allegations of a Syrian bioweapons program for a long time now, although no details of a program have ever reached the public domain (not to mention information about the size and the level of sophistication (summarized in Cordesman, 2008) [2]. The first official notification that hinted towards a B-dimension in Syria's armed forces was the statement of the former spokesman of the Syrian foreign ministry, Jihad Makdissi, made on 23 July 2012 that "No chemical or biological weapons will ever be used [...] during the crisis in Syria no matter what the developments in Syria. All of these weapons are in storage and under security and the direct supervision of the Syrian military and will never be used unless Syria faces external aggression." [3] While at that time one could still believe that Makdissi was mixing up biological and chemical weapons as it happens all the time the official Syrian declaration about the ricin program clearly changed things.

In the investigation of this case the first question that pops up clearly is: Why ricin? Ricin is a potent bio-toxin that can be isolated from the shell of castor beans and that can be lethal if, for example, ingested or inhaled. It is known in the public literature that in the past some states (e.g. the UK and the US) attempted to weaponize ricin for large scale attacks. Although these experiments date back to the 1940s there is still not much reason to believe that anytime anywhere in the world the problem of effective dissemination was solved. Hence, many experts think of ricin as a weapon of terror rather than a weapon of mass destruction. With the publicly available information, it is difficult at the moment to make any claims about the intention of the Syrian ricin program. Everything from assassination purposes via a proof-of-concept for successfully established methods to weaponize biological toxins to the contribution to the Syrian arsenal of unconventional weapons of deterrence are possible options.

Either way, the use of ricin as a weapon is strictly prohibited by both the CWC and the Biological and Toxins Weapons Convention (BWC). That the issue is dealt with under the CWC does by no means allow the conclusion that it should not be discussed as a bioweapon in the BWC context as well. Syria is a signatory state of the BWC since 1972, but has yet to ratify the treaty. However, it is possible to advance the view that also signatories of a treaty should not act in way that obviously violates its central obligations, and the production of ricin for non-peaceful purposes (e.g. in amounts that cannot be explained with medical dedications) would mark such a breach.

So, what do we know? Despite the frequent reporting by OPCW and UNSC from mid-2014 onwards, the public part of the story ends in November 2014 with quite a cliff-hanger: As a follow-up to the initial declaration on June 2014 a plan for destruction of the production facility was set up in September 2014 (EC- 77/P/NAT.2). Quite surprisingly for an external observer, it was only recognized in November that the site(s) of the program would be worth prior verification inspection (EC-M-6/DEC.1). Eventually the plan for destruction was decided along with the instruction that an OPCW team of experts should gather on the ground information to learn what exactly would have to be destroyed in the course of the disarmament activities (S/2014/853). And while one really gets excited about the progress of this story, since November 2014 there has only been a deafening silence on the issue. None of the monthly OPCW progress reports, nor any other public document mentioned the issue again. Even if it is somewhat likely that progress is hampered by the security situation on the ground, we would expect at least a notification that the process is delayed for good reasons. So:

What has happened to the ricin program?

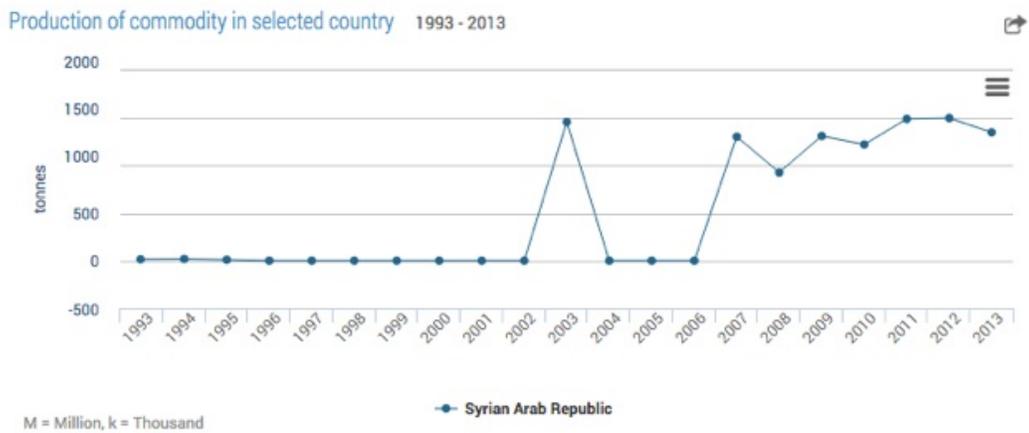
Anything else? Apart from the state of the program, there are, however, some more interesting issues that have been hinted to in the documents, which deserve some attention and which can be investigated further by the use of open source information. With astonishing openness OPCW speaks in the documents cited above of the "Al-Maliha ricin production facility" as the site where the program (at least in part) was located. Hence, the first and most driving question is: where exactly might this facility be located? Al-Maliha is an eastern suburb of Damascus. Given that the production facility is not underground (which is a possibility, though), there are basically three sites that can be considered. First, there is a military site.

Which, according to tags found in Wikimapia, is dedicated to the production of military garments.[4] Everybody can write comments and notes in Wikimapia, and we have trouble believing that Syrian uniforms really have to be protected with the kind of security perimeters that can be observed on the satellite imagery. But whatever they really do in that complex, the configuration of the buildings has nothing in common with biotechnological sites and/or pharmaceutical facilities in Syria and elsewhere in the world. Based on this gut feeling, we would say: This is not the site. The second candidate, a rubber factory, seems to be exactly what it is said to be.

Although such company obviously must have some experience in the refinement of natural products, there are no reasons to believe that they do anything other than producing rubber. The neighboring facility is Tameco ("**The Arab Medical Company**"). And we would bet our bottom dollars that this is the "Al-Maliha ricin production facility". Not only because this government owned factory is probably experienced in the handling of powders with sweeping effects, a further indicator is that construction work on the Tameco grounds was carried out at the same time when Syria started new agricultural activities: FAO reports that the production of castor beans in Syria in 2003 raised from a level just over zero to some 1.300 tons per year. It remained at this level even after the civil war began – in the years 2004-2006 there was possibly no reporting (in general there is not much to say against castor beans – their oil is used for many applications in industry and for cosmetics). [5]



Coordinates: 33°29'33.21"N; 36°21'46.96"E. Image taken on 8/15/2014.







Coordinates: 33°29'49.11"N; 36°22'20.09"E. Images taken on 03/30/2000 (image 1) and 12/24/2003 (image 2).

Today, after the Tameco facility has changed hands several times during the war, not much of the facility is left – it is literally bombed to ashes (image from 8/15/2014).



There is some footage available that shows some of the interior of the facility, before the destruction advanced to the actual level: the packages would most likely not contain ricin, so we won't worry about that, but maybe some expert in bioprocess engineering could identify the equipment visible in the footage? [6] But of course all this does not tell us if the Assad regime was able to remove equipment required for ricin production to some other place before the bombardment – and we don't know how much purified ricin really was produced and where it was (or still is) stored? Using open source information we were also not yet able to find the fields where the Castor trees were grown. It really bothers us that there still might be ricin stockpiles stored somewhere in Syria in such an unstable situation.

These are just the questions that pop up in regard to the ricin program. But history showed that countries that have decided to produce ricin for non-peaceful purposes (which, to stress that once again, is not yet verified for Syria!) have in many cases also developed a bioweapons program that was based on the (mis-)use of pathogens (mostly bacteria and viruses), too (e.g. Iraq). Are there any hints that the same happened in Syria? Indeed, the analysis of open source information at least allows for identifying some qualified questions in this regard, too. But that is another topic – possibly to be discussed here in the near future (if you Wonks would like to read more about it).

[1] <http://www.theguardian.com/world/2015/nov/06/un-watchdog-confirms-mustard-gas-attack-in-syria>

[2] http://csis.org/files/media/isis/pubs/080602_syrianwmd.pdf

[3] <http://www.theweek.co.uk/middle-east/syria-uprising/48124/syria-chemical-weapons-warning-threat-or-reassurance>

[4]

<http://wikimapia.org/#lang=de&lat=33.492676&lon=36.361423&z=19&m=b&show=/7008662/ar/%D9%85%D9%84%D8%A7%D8%A8%D8%B3-%D8%AD%D9%83%D9%88%D9%85%D9%8A%D8%A9&search=damascus>

[5] <http://faostat.fao.org/site/567/desktopdefault.aspx#ancor>

[6] <https://www.youtube.com/watch?v=BIQknSo5l7g>; <https://www.youtube.com/watch?v=CEHI0PpVT1w>

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