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A. UQ: India’s food supply stable now but reliant on phosphate imports to combat a growing population. Jadhav[[1]](#footnote-1) ‘13

(Reuters) - **India**, one of the world's biggest consumers of fertilisers, **is eyeing** several **phosphate projects** in Russia to secure supplies, two senior industry officials said on Monday. I**ndia is the world's top importer of** the crop nutrient diammonium **phosphate** (DAP) and accounts for nearly half of annual global shipments of around 16 million tonnes. Russian fertiliser maker Acron ([AKRN.MM](http://in.reuters.com/finance/stocks/overview?symbol=AKRN.MM)) ([AKRNq.L](http://in.reuters.com/finance/stocks/overview?symbol=AKRNq.L)) and a partner from India are discussing jointly developing a phosphate project in Russia, according to the agenda prepared for a visit of Prime Minister Manmohan Singh to Russia on October 21. "We are planning to secure phosphate supplies from Russia on a long-term basis," said an official with a state-run fertiliser company, who visited Russia last month with other Indian fertiliser company officials to evaluate mines in the north of the country. The officials asked not to be identified because the discussions are not finalised. "There are two options. One is to import raw material and process it in India. The other is to process raw material in Russia itself and bring finished products like DAP to India." Both officials said the governments of India and Russia might announce a broad plan regarding these projects, while details would be crafted in the coming months by the companies. Acron, one of Europe's top 10 fertiliser makers, declined comment. DAP is the most widely used phosphate fertiliser in the world. Phosphate-based fertilisers are most commonly used along with nitrogen and potash-based fertilisers. Logistics are the biggest hurdle to potential investment as the blocks offered by Acron and other Russian companies are based in the north, making it difficult to bring the material to India, the official added.**India**usually imports more than 7 million tonnes of phosphate-based fertiliser each year, consisting mainly of DAP. The landed cost of DAP in India has fallen to $390 per tonne on a cost-and-freight (CFR) basis, from $520 per tonne in May due to weaker demand."**Considering rising food demand**, we **need[s] to secure phosphate**, **so** we **[it[ won't be hurt whenever there would be a fluctuation in prices. Right now** we are **[it is] highly dependent on imports,**" the official added.High valuations of new projects at a time when DAP prices are low are also an obstacle to investment in Russia. To share the risks, India may set up a consortium of three to four companies, mainly state-run, and then collectively form a joint company with a Russian counterpart, he said.Another Indian industry official, who every year leads negotiations with overseas potash and phosphate suppliers, said that no fertiliser company is currently in a position to invest in any large project."All companies are facing a liquidity crunch due to a delay in subsidy disbursement from the government. Borrowing from banks is also not easy as interest rates are very high," the official said.If the government provides some support to the state-run fertiliser companies, then they can move ahead and commit some investment, he added. (Reporting by Rajendra Jadhav in Mumbai; Additional reporting by Victoria Andreeva and Polina Devitt in Moscow; Writing by Polina Devitt, editing by David Evans)

B. Links

Phosphate extraction tradesoff with environmental protection but key to world food supplies, no alternatives exist. Pearce[[2]](#footnote-2) ‘11

If you wanted to really mess with the world’s food production, a good place to start would be Bou Craa, located in the desert miles from anywhere in **the Western Sahara.** They don’t grow much here, but Bou Craa is a mine **contain**ing one of **the world’s largest reserves of phosphate rock. Most of us**, most days, **will eat** some **food grown on fields fertilized by** phosphate **rock** **from this mine**. And **there is no substitute**.The Western Sahara is an occupied territory. In 1976, when Spanish colonialists left, its neighbor Morocco invaded, and has held it ever since. Most observers believe the vast phosphate deposits were the major reason that Morocco took an interest. Whatever the truth, the Polisario Front, a rebel movement the UN recognizes as the rightful representatives of the territory, would like it back.Not many people would call phosphate a critical issue or one with serious environmental consequences. But even leaving aside the resource politics of the Sahara, it is an absolutely vital resource for feeding the world. It is also a resource that could start running low within a couple of decades — and one we grossly misuse, pouring it across the planet and recycling virtually none of it. **The world’s food supplies are alarmingly dependent on** the **phosphate fertilizer** that is hewn from the desert of the Western Sahara. The vast open-cast mine at Bou Craa delivers several million tons of phosphate rock every year down a 150-kilometer-long conveyor belt, the world’s longest, to the Atlantic port of El Ayoun. From there, it is distributed around the world and made into fertilizer. Morocco’s phosphate reserves are owned by the [Office Cherifien des Phosphates](http://www.ocpgroup.ma/), a Moroccan state agency. Given the almost unlimited executive powers of the Moroccan monarch, it might reasonably be said that most of the world's known reserves of phosphate are, in effect, owned by King Mohammed VI and his Alaouite dynasty, which has reigned in Morocco since the 17th century. If the people of Western Sahara ever resume their war to get their country back — or if the Arab Spring spreads and Morocco goes the way of Libya — then we may be adding phosphate fertilizer to the list of finite resources, such as water and land, that are constraining world food supplies sooner than we think. Phosphorus is one of the building blocks of all life. Every living cell requires it. Plants need phosphorus to grow as much as they need water. Many **soils do not have enough to meet the** voracious **demands for phosphorus of** the **high-yielding crop varieties of the Green Revolution.** But we can provide more by mining phosphate rock and turning it into fertilizer to spread on the land. It takes one ton of phosphate to produce every 130 tons of grain, which is why the world mines about 170 million tons of phosphate rock every year to ship around the world and keep soils fertile. Currently, only about 15 percent of that comes from mines in the Western Sahara and Morocco. But the only other large producers, the U. S. and China, mostly keep supplies for their own use. So Morocco is by far the biggest contributor to international trade, with more than half the total business. The people of **India, the world’s largest importer, would be****starving without Morocco’s phosphates**. Brazil’s agricultural boom would never have happened otherwise. Even more critically in the longer term, the U.S. Geological Survey says that of the 65 billion tons of the world’s known phosphate rock reserves — and the estimated 16 billion tons that might be economic to mine — almost 80 percent is in Western Sahara and Morocco. Add in China’s reserves, and the figure rises to almost 90 percent. The U.S., with 1.4 billion tons, is close to running out. You can see why agronomists are starting to get worried. The world is not about to run out of phosphate. But demand is rising, most of the best reserves are gone, and those that remain are in just a handful of countries. Dana Cordell of Linkoping University in Sweden, who runs an academic group called the [Global Phosphorus Research Initiative](http://phosphorusfutures.net/), says we could hit “peak phosphorus” production by around 2030. As domestic production wanes, the U.S. is starting to join those countries — most of the world, in fact — that import phosphate from Morocco and the Western Sahara. American imports cross the Atlantic courtesy of Potash Corp, the Canada-based fertilizer company whose hostile takeover bid by the Australian mining giant BHP Billiton was blocked by the Canadian government last year. And phosphate mining in Florida, which is home to the world’s largest phosphate mine, is being challenged by environmentalists concerned about its impact on waterways and drinking water supplies. Already, like other key commodities with once-dominant sources running low, the price of phosphate is starting to yo-yo alarmingly. Prices spiked at an 800-percent increase in 2008. A century ago, much of the world’s internationally traded phosphate came from bones (a major English import at one time) and guano, excavated from Pacific islands where birds had been defecating phosphate for millions of years. But bones are not traded much any more, and most of the guano islands are now mined out. The island state of Nauru, for instance, is nothing more than a moonscape after decades of mining it to fertilize the grain fields of Australia. The other key ingredient [needed to fertilize modern high-productivity farm soils is nitrogen](http://e360.yale.edu/feature/the_nitrogen_fix_breaking_a_costly_addiction/2207/). We know how to “fix” nitrogen from the atmosphere. If the German chemist Fritz Haber hadn’t come up with his process in 1908, there wouldn’t have been a Green Revolution — and there wouldn’t be 7 billion people on the planet today. The nitrogen produced by this process is estimated to be directly responsible for feeding 3 billion of us. But there are no new sources of phosphate. We continue to mine the rock — or we starve. **Phosphate** strip **mines are environment wreckers**. **They produce** around 150 million tons of toxic spoil a year. Their **massive draglines**, huge slurry pipes, **and mountainous spoil** heaps dominate the landscape for tens of miles in key mining zones, whether in the North African desert or in Florida, a state that still provides three-quarters of American farmers’ phosphate needs. The world’s largest mine is at Four Corners in an area known as Bone Valley in central Florida. The Four Corners mine covers 58,000 acres, an area five times the size of Manhattan. It is owned by [Mosaic](http://www.mosaicco.com/), a company recently spun off from agribusiness giant Cargill. Next door is the world’s second-largest mine, South Fort Meade. But South Fort Meade is living on borrowed time — its expansion plans are being opposed by local groups, and unless it can expand, the mine will have to close. As the drag mines move south in Florida, anger has been growing about the environmental impacts. A **million tons of mine waste, containing lows levels of radioactivity, are** already **piled up** at dump sites around the state, and disputes are growing over promised mine cleanups. Rivers have dried up, and settling ponds have leaked. Last year, the local chapter of the Sierra Club went to court to block Mosaic’s plans to extend the life of the South Fort Meade mine by expanding its footprint. The group is concerned about the fate of the Peace River, a vital source of Florida’s drinking water; it says the U.S. Army Corps of Engineers gave approval for the expansion without first conducting a full environmental audit. The case is unresolved to date. As for the impending shortages of phosphate, will technological advances and market forces solve the problem? We certainly waste a lot of this most valuable resource. Globally, we allow some 37 million tons of phosphorus to spill into the environment each year. It mostly flows down sewers and agricultural drains into rivers and lakes, where it feeds the growth of toxic cyanobacteria and consumes oxygen, creating eutrophication and “dead zones.” While nitrogen pollution tends to get top billing as a cause of eutrophication, cyanobacteria can often abstract nitrogen from the air. David Schindler, of the University of Alberta in Edmonton, and others have argued that [limiting phosphorus pollution is the key to eliminating eutrophication](http://www.rso.ualberta.ca/news.cfm?story=81511). So how can we stop phosphate pollution, recycle it, and keep it in the food chain where we need it? Composting crop residues would be a good way of recycling this valued nutrient back into the soil, cutting the need for new applications of fertilizer — so would capturing some of the 3 million tons of phosphorus that cycles through human bodies annually, after being consumed in our food. Cordell says we should give top priority to recycling our urine, which contains more than half of all the phosphorus that we excrete. But another conventional technical fix for a resource in short supply — finding a substitute — is not available. **Presently, there** simply **are no substitutes for phosphorus**.

C. Internal Links- a fraction of the link causes immediate food price increases cause-crippling stability in India and causes conflict with Pakistan- statistical and empirical proof from the Arab Spring confirms Lagi et al[[3]](#footnote-3) ‘11

In 2011 protest movements have become pervasive in countries of North Africa and the Middle East. These protests are associated with dictatorial regimes and are often considered to be motivated by the failings of the political systems in the human rights arena [1{4]. Here we show that **food prices are the precipitating condition for social unrest** [5{12] and identify a specifc global food price threshold for unrest. Even without sharp peaks in food prices we project that, within just a few years, the trend of prices will reach the threshold. This points to a danger of spreading global social disruption. Historically, there are ample examples of \food riots," with consequent challenges to au- thority and political change, notably in the food riots and social instability across Europe in 1848, which followed widespread droughts [13]. While many other causes of social unrest have been identi\_ed, **food scarcity** or high prices often **underlie riots, unrest and revolutions** [14{20]. Today, many **poor countries rely on the global** food supply **system** **and** **are** thus **sensitive** **to global** food **prices** [21]. This condition is quite di\_erent from the historical prevalence of subsistence farming in undeveloped countries, or even a reliance on local food supplies that could provide a bu\_er against global food supply conditions. It is an example of the increasingly central role that global interdependence is playing in human survival and well-being [22{24]. **We** can **understand** **the appearance of social unrest in 2011 based upon** a hypothesis that widespread unrest does not arise from long-standing political failings of the system, but rather from its **sudden perceived failure to provide essential security** to the population. **In food importing countries with widespread poverty**, political organizations may be perceived to have a critical role in food security. **Failure to provide security undermines** **the** very reason for **existence of the political system.** Once this occurs, the resulting protests can reect the wide range of reasons for dissatisfaction, broadening the scope of the protest, and masking the immediate trigger of the unrest. Human beings depend on political systems for collective decision making and action and their acquiescence to those systems, if not enthusiasm for them, is necessary for the existence of those political systems. The complexity of addressing security in all its components, from protection against external threats to the supply of food and water, is too high for individuals and families to address themselves in modern societies [25]. Thus, individuals depend on a political system for adequate decision making to guarantee expected standards of survival. This is particularly true for marginal populations, i.e. the poor, whose alternatives are limited and who live near the boundaries of survival even in good times. The dependence of the population on political systems engenders its support of those systems, even when they are authoritarian or cruel, compromising the security of individuals while maintaining the security of the population. Indeed, a certain amount of authority is necessary as part of the maintenance of order against atypical individuals or groups who would disrupt it. When the ability of the political system to provide security for the population breaks down, popular support disappears. Conditions of **widespread threat to security are particularly present when food is inaccessible to the population at large.** In this case, the underlying reason for support of the system is eliminated, and at the same time there is \nothing to lose," i.e. even the threat of death does not deter actions that are taken in opposition to the political order. **Any incident** then **triggers death-defying protests** and other actions that disrupt the existing order. Widespread and extreme actions that jeopardize the leadership of the political system, or the political system itself, take place. **All support for the system** and allowance for its failings **are lost**. The loss of support occurs even if the political system is not directly responsible for the food security failure, as is the case if the primary responsibility lies in the global food supply system.

Indo-Pak conflict goes nuclear- Indian air superiority forces Pakistan’s hand. Sharma[[4]](#footnote-4) 11

The US ambassador to Pakistan, Anne Patterson, argued strongly with her Government to sell Pakistan more F-16 fighter jets to, ironically, prevent a nuclear war between India and Pakistan. Patterson, in a 2009 cable, pointed out that **Pakistan is likely to use Nuclear weapons against India in** a matter a few **days if the two countries go to war** with each other again, because Pakistan would start losing the war by then."**To overcome overwhelming Indian military superiority, Pakistan developed** both **its nuclear** and missile **program** and its air power," she wrote two years ago, according to Wikileaks.She pointed out that **India had** nearly **double the number of jets** (736 to 370 jets) that Pakistan has and **many** of them **have the ability to fire missiles at targets that cannot be seen** directly in front or are beyond the visual range. **Pakistani jets,** she points out**, can only fire at targets in sight** and urged the US to help Pakistan overcome the power imbalance.She pointed out that a Pakistan which is evenly or nearly evenly matched with India is less likely to attack India with Nuclear weapons than one which felt it stands no chance."F-16 aircraft, armed with AMRAAM [beyond visual-range missiles], essentially buy time to delay Pakistan considering the nuclear option in a conflict with India. Given India's overwhelming military superiority, this would only be a few days**,** but these days would allow critical time to mediate and prevent nuclear conflict," she said.The Ambassador's comments make it clear that despite political statements on "no first use" of Nuclear weapons, the Americans expect the Pakistanis to use Nuclear weapons against India in case of a war, albeit a few days after the war starts.Patterson pointed out that, as of 2009,Pakistan didn't stand much of a chance of winning a war against India unless it used Nukes."**Pakistan's shortfalls in training and tactics multiply India's edge.** Pakistan also plans to buy/jointly produce 150 inferior JF-17 fighters from China, but it is unclear how they will pay for them. Meanwhile, India plans to acquire 126 multi-purpose fighters (F-18 or equivalent) **that will give India significant new technologies and further expand its air superiority over Pakistan**," she worried.In another cable, she also pointed out that India will not be threatened by the F-16s as it is in the process of buying even more advanced jets."The escalation of Indo-Pak tensions following the Mumbai attacks demonstrated to the Pakistanis that the threat from India still exists. The Pakistani F-16 program, however, will be no match for India's proposed purchase of F-18 or equivalent aircraft," she

D. Impact: Extinction. Hogan[[5]](#footnote-5)

In the fall of 1983, a group of scientists led by Carl Sagan introduced a new strain of apocalyptic discourse into the freeze debate: the rhetoric of nuclear winter. Simply stated, the theory of nuclear winter held that **even a small exchange** of nuclear weapons—on the order, perhaps, of 500 of the world’s 18,000 nuclear—**would throw so much** dirt, **soot,** and smoke **into the atmosphere that the earth would be plunged into** darkness and subfreezing temperatures, a **“winter” lasting long enough to create** “a real possibility of the **extinction** of the human species” Unlike doomsday scenarios that preceded it, **the theory of nuclear** weapons **winter was based upon “extensive scientific studies**,” and it had been “endorsed by a large number of scientists.”

# Weighing/Extension EV

Indian economic growth is key to global stability. Garten ‘95 (Jeffrey, Under Sec. Trade, “Moving beyond”, March 7, FDCH, p ln)

Paramount among those interests are the commercial opportunities that are increasingly at the heart of the Clinton Administration's foreign policy. But it is impossible to separate those commercial interests from our broader interests. Economic reforms enable our companies to take advantage of the opportunities within the Indian market and enable Indian companies to better enter the global marketplace. Economic **growth in India is a** powerful **stabilizing force in a region** of the world where stability is of supreme.importance. **Stability** and growth **in India** are **of enormous importance through southern Asia,** from **the Middle East to Indochina**. **Peace** and prosperity **in that part of the world are essential to the peace** and prosperity **of the world**. **The survival of Indian democracy is** an **important** **message to those who doubt** the value of **democracy**, particularly **in** large, complex, **emerging societies**. India is a regional powerhouse. Home of the world's fourth largest navy. Home of a burgeoning space program. It would be hard to describe a nation that could be more central to our interests in the century ahead -- or one with whom the promise of cooperation and friendship is greater.

This evidence is untouchable- multivariate statistical analysis confirms the causative hypothesis. Lagi et al ‘11

Marco Lagi, Karla Z. Bertrand and Yaneer Bar-Yam , “The Food Crises and Political Instability in North Africa and the Middle East”. New England Complex Systems Institute, August 10, 2011. RP 12/21/13

The role of global food prices in social unrest can be identified from news reports of food riots. **Figure 1 shows a measure of global food pric**es, the UN Food and Agriculture Organization (FAO) Food Price Index [57] **and the timing of** reported **food riots** in recent

years. In 2008 more than 60 food riots occurred worldwide [58] in 30 different countries [59], 10 of which resulted in multiple deaths [30{40], as shown in the \_gure. After an intermediate drop, even **higher prices at the end of 2010 and** the beginning of **2011** **coincided****with additional food riots** (in Mauritania and Uganda [45, 55]), as well as the larger protests **and government changes in North Africa and the Middle East** known as the Arab Spring [42{44, 46{54]. **There are** comparatively **fewer** food **riots when** the global food **prices are****lower. T**hree of these, at the lowest global food prices, are associated with speci\_c local factors a\_ecting the availability of food: refugee conditions in Burundi in 2005 [26], social

and agricultural disruption in Somalia [27] and supply disruptions due to oods in India [28, 39]. The latter two occurred in 2007 as global food prices began to increase but were not directly associated with the global food prices according to news reports. Two additional food riots in 2007 and 2010, in Mauritania [29] and Mozambique [41], occurred when global food prices were high, but not at the level of most riots, and thus appear to be early events associated with increasing global food prices. These observations are consistent with a hypothesis that **high global food prices are a**

**precipitating condition for social unrest. M**ore speci\_cally, food riots occur above a threshold of the FAO price index of 210 (p < 10􀀀**7**, binomial test). **The observations** also **suggest** that the **events in North Africa and the Middle East were triggered by food prices.** **Considering****the period** of time **from** January **1990 to** May **2011** (Fig. 1 inset), **the probability that the****unrest in North Africa and the Middle East occurred by chance** at a period of high food prices **is p < 0:06** (one sample binomial test). This conservative estimate considers unrest across all countries to be a single unique event over this period of just over twenty years. If individual country events are considered to be independent, because the precipitating conditions must be su\_cient for mass violence in each, the probability of coincidence is

much lower.

DA turns case- instability goes global, causes mass uprisings in otherwise stable democratic nations. Lagi et al 11

**A persistence of global food prices** above this food price threshold **should lead to** persistent and **increasing global unrest**. Given the sharp peaks of food prices we might expect the prices of food to decline shortly. However, underlying the peaks in Fig. 1, we see a more gradual, but still rapid, increase of the food prices during the period starting in 2004. It is reasonable to hypothesize that **when this** underlying **trend exceeds the threshold, the security of** vulnerable **populations will be broadly** and persistently **compromised**. Such a threat to security should be a key concern to policymakers worldwide. Social unrest and **political instability of countries can** be expected to **spread** as the impact of loss of security persists and becomes pervasive, even though the underlying causes are global food prices and are not necessarily due to speci\_c governmental policies. While some variation in the form of unrest may occur due to local di\_erences in government, **desperate populations are likely to resort to violence even in democratic regimes.** A **breakdown of social order as a result of loss of food security has been predicted based upon historical events** and the expectation that global **population increases** and resource constraints **will lead to catastrophe** [60{63].

As shown in Fig. 2, the underlying trend of increasing prices will reach the threshold of

instability in July 2012, if we consider current prices, and April 2013 if we correct prices

for reported ination. Either way, the amount of time until the often warned global food

crises appears to be very short. Indeed, consistent with our analysis, the current food price bubble is already subjecting large populations to reported distress, as described in a recent UN report warning of the growing crisis [64].

1. RAJENDRA JADHAV , “India eyes phosphate projects in Russia to secure supply”. Reuters India, October 21, 2013. <http://in.reuters.com/article/2013/10/21/fertilisers-india-russia-idINDEE99K0BA20131021>. RP 12/21/13 [↑](#footnote-ref-1)
2. Fred Pearce , “Phosphate: A Critical Resource Misused and Now Running Low”. Environment 360, Yale University, July 07, 2011.<http://e360.yale.edu/feature/phosphate_a_critical_resource_misused_and_now_running_out/2423/>. RP 12/21/13 [↑](#footnote-ref-2)
3. Marco Lagi, Karla Z. Bertrand and Yaneer Bar-Yam , “The Food Crises and Political Instability in North Africa and the Middle East”. New England Complex Systems Institute, August 10, 2011. RP 12/21/13 [↑](#footnote-ref-3)
4. Sharma, Vijay. "Pakistan Likely to Use Nuclear Weapons on India "a Few Days" into War: US Ambassador (Wikileaks) | Real Time News, India RTN Asia, 30 May 2011. Web. 23 July 2012. <http://rtn.asia/509\_pakistan-likely-use-nuclear-weapons-india-few-days-war-us-ambassador>. [↑](#footnote-ref-4)
5. 1] Michael Hogan, The Nuclear Freeze Campaign, 1994, p. 52 [↑](#footnote-ref-5)