

# Optimizing the Monitoring Framework Indicators for Pesticides in the Kunming-Montreal Global Biodiversity Framework (KMGBF)

Pesticide Action Network International (PAN) and Third World Network (TWN)

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## Key Messages

1. Transformative action on pesticide pollution and agricultural sector reform are critical and connected commitments under the Kunming-Montreal Global Biodiversity Framework (KMGBF).<sup>1</sup>
2. Target 7 mandates ‘the overall risk from pesticides’ be reduced ‘by at least half’ by 2030 with risk being measured by both the use and toxicity of pesticides applied (pesticide load, or toxic load). The vast majority of reductions must occur in agriculture.
3. Target 10 calls for a ‘substantial increase’ in the application of agroecological practices, while Targets 15 and 18 require actions to ensure corporate practice and financial and other incentives contribute to the pesticides and agroecological outcomes of Target 7 and 10.
4. The KMGBF mandates the Ad-Hoc Technical Expert Group (AHTEG) on Indicators to ‘**address critical gaps to improve the monitoring framework.**’
5. Indicators for pesticides and agriculture present critical gaps for the AHTEG to address.

## PAN/TWN therefore recommends that the AHTEG advises Parties to:

- I. employ the Pesticide Load Indicator (or others of the appropriate indicators highlighted in the Target 7 Science Brief) as the scientific methodology for reporting on Headline Indicator 7.2 - ‘pesticide environmental concentration’;
- II. disaggregate Indicator 7.2 reporting (using the Pesticide Load Indicator methodology) to include pesticide load reductions by sector, including agriculture, forestry, aquaculture, urban and amenity, and health;
- III. nominate suitable Target 7 indicators for ‘highly hazardous chemicals’;
- IV. disaggregate Headline Indicator 10.1 to ensure Parties report specifically on the significant increases in agroecological practices mandated by Target 10;
- V. expand and improve on Component and Complementary indicators across Targets 7, 10, 15, and 18. Specific recommendations are made below.



Dragonfly. Credit Surajps from Getty Images/via Canva.com

## A Mandate for Improving the Monitoring Framework Indicators

Indicators for monitoring progress against KMGBF Targets relevant to pesticides, including Targets 7, 10, 15, 18, were adopted at CBD COP15 in Montreal in 2022. However, these are currently insufficient, and a review process has been established, with a view to further consideration at COP16 in 2024.

Decision CBD/COP/DEC/15/5 tasks the Ad-Hoc Technical Expert Group (AHTEG) on Indicators and the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) with addressing 'critical gaps' in the indicators, by 2024.<sup>ii</sup>

Some headline indicators are lacking methodologies (Indicators 7.2 and 15.1) or are inadequately defined and lack relevant metrics for measurement (Indicator 10.1).

While the Component and Complementary indicators for some of these are potentially pertinent, some are insufficient, or absent entirely.

### Target 7: Pollution and Pesticides

Target 7, clause (b), commits Parties to **'reducing the overall risk from pesticides and highly hazardous chemicals by at least half...'** by 2030.

While clause (b) mandates a quantified 'risk reduction' rather than a 'quantity' reduction, the CBD makes clear that 'risk' is to be measured by a combination of pesticide use and toxicity, also referred to as pesticide load, or toxic load. (See **'Risk = use and toxicity'** in Annex.)

**Target 7 therefore mandates an at least half reduction by 2030 in the combined use and toxicity of pesticides (Pesticide Load, or Toxic Load).**

#### Assigning a methodology for Headline Indicator 7.2:

That risk is to be measured by a combination of use and toxicity is *implicitly* reflected in the wording of Headline Indicator 7.2 – **'Pesticide environment concentration\*'**.

However, this term is not defined or in common usage in scientific literature, and the asterisk denotes the absence of an agreed methodology and that the AHTEG **'will work with partners to guide the development'** of the indicator.

In this context, and on the assumption headline indicators cannot be amended at this stage, **PAN/TWN recommend that the AHTEG advises Parties to employ the Pesticide Load Indicator<sup>iii</sup> as the scientific methodology for reporting reductions in the 'pesticide environment concentration' under Headline Indicator 7.2.**

The Pesticide Load Indicator has been used in Denmark as a pesticide risk indicator for over a decade, at 'low administrative burdens and costs'.<sup>iv</sup> A 2021 study on the application of the Pesticide Load Indicator in the UK found that **'the structure of the pesticide load indicator (PLI) and its close links to existing resources, such as the Pesticide Properties Database (PPDB) (Lewis et al., 2016), mean that it can be straightforwardly and transparently adapted to a novel national context with minimal changes or requirements for further large-scale data collection.'**<sup>v</sup>

The Pesticide Load Indicator employs existing data on national pesticide use or sales, combined with publicly available toxicity data by active ingredient, calculable for formulations. This means that there will be limited need for investment in new capacity or data collection for the application of the Pesticide Load indicator by CBD Parties.

The AHTEG may want to also consider the adoption of other appropriate indicators highlighted in the Target 7 Science Brief that measure biodiversity risk as combinations of pesticide use and toxicity. These include the **Total Applied Toxicity (TAT)** indicator, and a **Risk Score (RS)** indicator. Data underlying these indicators include **'substance-specific pesticide use data based on sales at the country level as well as pesticide toxicity data.'**<sup>vi</sup> Data are readily available for these metrics.

#### Disaggregation of Headline Indicator 7.2

The Target 7 Science Brief makes clear that agriculture **'contributes to more than 80% of total pesticide used'** and presents **'by far the largest share'** of **'pesticide use and risks'**. It concludes that **'because agriculture is the most important source of nitrogen, phosphorus and pesticide pollution, it is also the most important leverage point for reducing these forms of pollution.'** Progress in Target 7 is linked to progress in Target 10 on agriculture in both the CBD guidance<sup>vii</sup> and the Science Brief for Target 10.

**PAN/TWN also recommends, therefore, that the AHTEG recommends that Parties disaggregate reporting under Headline Indicator 7.2 - using the Pesticide Load indicator - to reflect reductions in pesticide use and toxicity across different sectors: agriculture, forestry, aquaculture, urban and amenity, and health sector/vector control uses.**

## HHPs, and Component and Complementary Indicators for Target 7

No Component Indicators currently exist for pesticides under Target 7, while two Complementary Indicators relate to pesticides – namely:

1. 'Name, amount/ volume/ concentration of highly hazardous pesticides by type (per land/marine area)'; and
2. 'Pesticide use per area of cropland'.

The reference to Highly Hazardous Pesticides (HHPs) is highly pertinent. HHPs are a subset of the most toxic and hazardous pesticides, that meet formal criteria agreed by the Joint Meeting of Pesticides Management (JMPPM) – a body under the auspices of the World Health Organization (WHO) and Food and Agriculture Organization (FAO). These criteria are widely recognised and accepted by international chemicals governance stakeholders and multilateral instruments.<sup>viii</sup>

HHPs cause by far the most environmental and human harms and contribute most significantly to the overall pesticide loads of many countries.

**PAN/TWN advise national policy makers that the single most effective action to achieve the 'at least half' reduction in pesticide use and toxicity by 2030 mandated under Target 7 is to phase out the use of HHPs in agriculture.**

On 30 September 2023, the fifth meeting of the UN's International Conference on Chemicals Management (ICCM5) agreed and adopted the Global Framework on Chemicals (GFC), as the successor instrument to the Strategic Approach to International Chemicals Management (SAICM).

Target A7 of the GFC commits stakeholders, including governments, to a path to phase out HHPs in agriculture. ICCM5 also adopted a resolution to establish a Global Alliance on HHPs, that would facilitate the HPP phase out set out under Target A7.

[\(See PAN/TWN Briefing Document: Interpreting the Mandate for Action on Pesticides in the Kunming-Montreal Global Biodiversity Framework \(KMGBF\)\)](#)

PAN International maintains a list of HHPs building on the UN's criteria, which can guide countries in phase outs.<sup>ix</sup>

**PAN/TWN recommend therefore, that, relating to Headline Indicator 7.2., the AHTEG:**

- 🔥 **Adopt 'Name, amount/ volume/ concentration of highly hazardous pesticides by type (per land/ marine area)' as a Component Indicator** - so as to further disaggregate reporting on the most toxic pesticide use by land and marine environments (regardless of source);
- 🔥 **Amend 'Pesticide use per area of cropland' to be 'Pesticide load per area of cropland'** (also calculated using the Pesticide Load Indicator methodology) **and adopt it as a Component indicator**, to ensure an average use and toxicity measure for agriculture can be captured.

**PAN/TWN also recommend that new Complementary Indicators for Headline Indicator 7.2 are adopted.**

One of these should be:

- 🔥 *'List of pesticide formulations and/or CAS numbers prohibited or restricted under specific national legislation.'*

This would significantly aid international governance bodies and multilateral agencies to better track which pesticides, including HHPs, are prohibited or restricted worldwide – information that is, surprisingly, not currently sufficiently tracked by any intergovernmental agency or policy mechanism.

## Highly Hazardous Chemicals

PAN/TWN note that there is no internationally recognised or used definition of, nor specific indicators for 'highly hazardous chemicals', a category of pollutants explicitly referenced in Target 7 clause (b), and which are subject to their own separate 'at least half' risk reduction by 2030 requirement. (See: 'Two reductions, not one' in Annex.)

While theoretically incorporating HHPs, this category of pollutants includes numerous chemicals that are not pesticides but which are highly hazardous to biodiversity, and it is critical that reductions of pollution risk from these highly hazardous chemicals are also measured by the Monitoring Framework.

**PAN/TWN recommend, therefore, that the AHTEG develops suitable indicators for highly hazardous chemicals** – possibly taking into consideration those chemicals identified as 'issues of concern' within the Strategic Approach to International Chemicals Management (SAICM) and its new successor instrument – the Global Framework on Chemicals (GFC), and in UNEP's Global Chemicals Outlook II.<sup>x</sup>

## Target 10: Agroecology

Target 10 on agriculture does not mention pesticides, nor have pesticide-specific indicators, despite Targets 10 and 7 being linked in the CBD Secretariat's Guidance Notes, and the fact that the Target 7 Science Brief explicitly identifies agriculture as *'the most important leverage point'* for pesticide risk reductions of at least half by 2030.

The absence of pesticide-specific requirements or indicators for Target 10 is not a structural problem - if Headline Indicator 7.2 is disaggregated to report on pesticide load reductions in agriculture specifically, as recommended above.

Nonetheless, the wording of Target 10 and the indicators proposed inadequately define or capture important metrics relevant to key elements of the Target, and the CBD Target 10 Science Brief concluded that the KMGBF *'would profit from greater clarity on ... the wording of Target 10 and in the choice of indicators...'* This has not yet occurred.

Target 10 commits Parties to ***'Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably... through a substantial increase of the application of biodiversity friendly practices ... such as sustainable intensification, agroecological and other innovative approaches...'***

The term 'managed sustainably' is, unfortunately, a highly contested concept, potentially providing for major variances in interpretation justifying wildly divergent practices and pollution outcomes.

The Target explicitly mandates a *'substantial increase in biodiversity friendly practices'*, and refers to two models of practices as examples, including *'sustainable intensification'* and *'agroecological practices'*.

It is critical to note that, in light of the large pesticide load reductions mandated for agriculture under Target 7, **agroecological practices will need to be prioritised over sustainable intensification**, the latter of which, PAN/TWN believe, commonly involves systematic applications of significant pesticide loads that are detrimental to biodiversity.

PAN/TWN recommend, therefore, that the AHTEG:

- 🔥 **Disaggregates Headline Indicator 10.1 to ensure Parties report specifically on the significant increases in agroecological practices mandated by Target 10. This can be achieved by adding a new Component Indicator - 'proportion of agricultural area managed using agroecological practices'**
- 🔥 **Adds 'area of agricultural land certified organic,' and 'Percentage increase in number of farmers implementing agroecological practices' as new Component Indicators.**
- 🔥 **Recommends methodologies for Parties to use in reporting against these Indicators.**

## Target 15: Corporate Practices

The Headline Indicator for Target 15 – *'Number of companies reporting on disclosures of risks, dependencies and impacts on biodiversity\*'* is also marked with an asterisk, indicating that an agreed up-to-date methodology does not exist for this indicator, and that the AHTEG will work with partners to guide its further development.

The wording mandates the provision of information on the actions of companies, but not the actions of government to *'Take legal, administrative or policy measures to ... ensure'* companies are monitoring, assessing and publicly disclosing biodiversity impacts.

PAN/TWN recommend that the AHTEG:

- 🔥 **Includes a new Component Indicator pertaining to Headline Indicator 15.1, namely: 'Number and names of legislative, administrative or policy measures prompting company disclosures reported in Headline Indicator 15.1.'**

Bumblebee. Credit Paul O'Doherty from Getty Images/via Canva.com



## Target 18: Incentives Harmful for Biodiversity

Action on incentives harmful to biodiversity under Target 18 is highly relevant to pesticide risk reductions under Target 7, and significant increases in agroecological practices under Target 10.

While Headline Indicators 18.1 – ‘Positive incentives in place to promote biodiversity conservation and sustainable use’, and 18.2 – ‘Value of subsidies and other incentives harmful to biodiversity that have been eliminated, phased out or reformed’ are relevant, they are also extremely broad, and appear to aggregate measures that relate to a large array of activities harmful to biodiversity. This makes it impossible to understand which biodiversity-detrimental activities are being addressed through financial incentives reforms.

Additionally, it is not clear if Headline Indicator 18.1 requires a financial measure, and if so, which metric is to be used in reporting.

Many of the Target 18 Complementary Indicators are also currently phrased as ‘number of countries with ...’ or ‘Trends in ...’ relevant tax or subsidy measures. These appear not to mandate country specific reporting by individual Parties, and instead lean toward global monitoring. Both are necessary for implementation of the KMGBF.

PAN/TWN recommend therefore that the AHTEG:

- 🔥 Amends Headline Indicator 18.1 to read **‘Value of positive incentives in place to promote biodiversity conservation and sustainable use’**;
- 🔥 Adds new Component Indicators for Target 18 mandating Parties to provide disaggregated data – possibly to reflect how financial incentives reforms relate to specific Targets of the KMGBF (e.g., Value of positive incentives in place to promote pollution reduction under Target 7.)
- 🔥 Amend wording of Complementary Indicators to mandate national reporting by Parties – e.g., change ‘Number of countries with biodiversity-relevant taxes’ to ‘List of national biodiversity-related taxes’.

Scarlet pimpernel. Credit Michel Viard  
from Getty Images/via Canva.com



## Annex

### Risk = Use + Toxicity

The CBD Secretariat's guidance states that Target 7 *'focuses on the risks and impacts of pollution rather than absolute amounts of pollutants, in terms of the different toxicity and/or hazards posed by different types pollutants.'*<sup>xi</sup>

'Risk reduction' was codified in clause (b) following recommendations in the Target 7 Science Brief that *'it is important to frame pesticide policies in terms of risk instead of quantity, because very toxic pesticides can pose high risks to certain groups of species even if they are used in low quantities.'*<sup>xii</sup>

The Science Brief explicitly and repeatedly links pesticide risk to toxicity and use. It states: *'indicators for pesticide risk reduction should generally be applied at the level of pesticide sales or use'*; and that *'the basic requirement to compute aggregated risk indicators is data on pesticide sales or use on a product or active substance level, combined with data bases containing information on risk per product or active substance.'*

### Two reductions, not one

Some may interpret the 'at least half' risk reduction requirement of Target 7 clause (b) as applying to 'pesticides and highly hazardous chemicals' combined – without prescribing which of these categories of substances should involve what proportion of that singular reduction.

However, this interpretation is not justified in the text, nor by the Target 7 Science Brief, or by guidance published by the CBD Secretariat<sup>xiii</sup>.

Clause (b) requires an at least half risk reduction for pesticides, as one category of pollutants, and another at least half reduction of other highly hazardous chemicals, as another category.

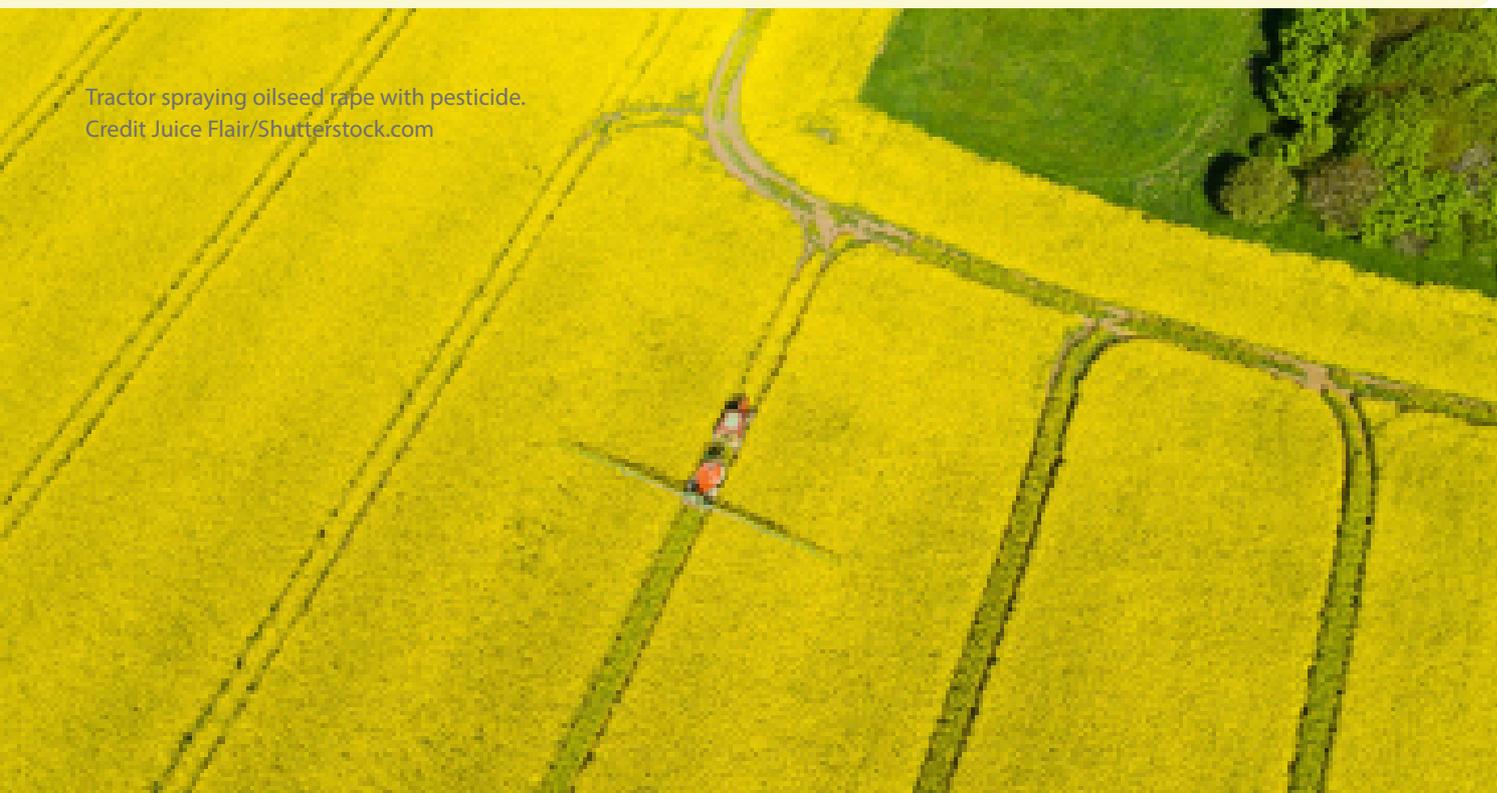
The Science Brief on Target 7 produced for the CBD Secretariat in May 2022 advised that pesticide risk reductions of up to 50% can be achieved through pesticide substitution and efficiencies without redesigning production systems.

But the Brief also indicated that redesign should also occur. It states that *'novel pesticide-free production systems can greatly reduce pesticide use while increasing farmer's incomes'*; and that *'enhancing biodiversity in agricultural systems can help to greatly reduce pesticide inputs and should play an important role in redesign.'*<sup>xiv</sup>

The CBD Secretariat's guidance on Target 7 reiterates this, stating that actions on pesticides under Target 7 *'should be a part of wider sustainable agriculture and food systems transitions.'*

**Target 7 therefore mandates a reduction in the risk from pesticides alone of at least half by 2030, and another at least half reduction in risk from Highly Hazardous Chemicals.**

Tractor spraying oilseed rape with pesticide.  
Credit Juice Flair/Shutterstock.com





Goldfinch and sparrow on a branch. Credit Greg van de Leest from Getty Images/via Canva.com

## References

- i. Decision 15/4, the Kunming-Montreal Global Biodiversity Framework, CBD/COP/DEC/15/4, 19 December 2022, available at <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf>
- ii. CBD/COP/DEC/15/5, Annex II paragraph 1 (a) i, tasks the AHTEG to 'Support the work to address critical gaps to improve the monitoring framework, in particular on headline indicators that do not have an existing methodology, and advise on their implementation at the national level.' Annex I, paragraph 1(e) stipulates that the monitoring framework may be 'supplemented by additional national and subnational indicators.' Annex I, paragraph 2 indicates work in finalising the indicators needs to be complete by 2025. <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-05-en.pdf>
- iii. Per Kudsk, Lise Nistrup Jørgensen, Jens Erik Ørum, 'Pesticide Load—A new Danish pesticide risk indicator with multiple applications', 16 November 2017, <https://doi.org/10.1016/j.landusepol.2017.11.010>
- iv. Secretariat of the Convention on Biological Diversity. Science briefs on targets, goals and monitoring in support of the post-2020 global biodiversity framework negotiations. 2022. CBD/WG2020/4/INF/2/Rev.2. Available from: <https://www.cbd.int/doc/c/6053/38a4/3710d6e83f5b006ef774607d/wg2020-04-inf-02-rev-01-en.pdf>
- v. Lewis, K., Rainford, J., Tzilivakis, J., & Garthwaite, D. Application of the Danish pesticide load indicator to arable agriculture in the United Kingdom. *J Environ Qual.* 2021;50:1110–1122. <https://doi.org/10.1002/jeq2.20262>
- vi. Secretariat of the Convention on Biological Diversity. Science briefs on targets, goals and monitoring in support of the post-2020 global biodiversity framework negotiations. 2022. CBD/WG2020/4/INF/2/Rev.2. Available from: <https://www.cbd.int/doc/c/6053/38a4/3710d6e83f5b006ef774607d/wg2020-04-inf-02-rev-01-en.pdf>
- vii. <https://www.cbd.int/gbf/targets/7/>
- viii. <https://www.unep.org/explore-topics/chemicals-waste/what-we-do/emerging-issues/highly-hazardous-pesticides-hhps>
- ix. PAN International, List of Highly Hazardous Pesticides, March 2021. <https://www.pan-uk.org/site/wp-content/uploads/PAN-HHP-List-2021.pdf>
- x. SAICM and its successor, the Global Framework on Chemicals (GFC), and UNEP's *Global Chemicals Outlook II* report have, between them, identified 19 'issues of concern' in chemicals and waste management, many of present significant risks to biodiversity as well as human health. While some issues of concern are around individual chemicals (e.g., Triclosan, bisphenol A (BPA)), others relate to multiple chemicals grouped by type, negative impacts, or usage (e.g., endocrine-disrupting chemicals (EDCs, Phthalates, PER- and POLYFLUOROALKYL SUBSTANCES (PFASs), Hazardous substances in the life cycle of electrical and electronic products, and Highly Hazardous Pesticides, etc). There are some clear overlaps (e.g., Glyphosate is an issue of concern in itself, while it is also an HHP). *Consultations* to inform concerted action to address risks from these issues of concern chemicals are currently being held by UNEP under the remit of *UN Environment Assembly (UNEA) resolution 5/7*.
- xi. <https://www.cbd.int/gbf/targets/7/>
- xii. [https://geobon.org/wp-content/uploads/2022/06/T7\\_brief.pdf](https://geobon.org/wp-content/uploads/2022/06/T7_brief.pdf)
- xiii. <https://www.cbd.int/gbf/targets/7/>
- xiv. Secretariat of the Convention on Biological Diversity. Science briefs on targets, goals and monitoring in support of the post-2020 global biodiversity framework negotiations. 2022. CBD/WG2020/4/INF/2/Rev.2. Available from: <https://www.cbd.int/doc/c/c874/6eb7/813f0201cd67299c9eb10a4a/wg2020-04-inf-02-rev-02-en.pdf>

### Pesticide Action Network International (PAN)

is a network of over 600 participating non-governmental organizations, institutions and individuals in over 90 countries working to replace the use of hazardous pesticides with ecologically sound and socially just alternatives.

[www.pan-international.org](http://www.pan-international.org)

Contact at PAN:

Email: [manon@pan-uk.org](mailto:manon@pan-uk.org) /

[jago@pan-uk.org](mailto:jago@pan-uk.org)

Telephone: +44(0)1273 964230



### Third World Network (TWN)

is an independent non-profit international research and advocacy organisation involved in bringing about a greater articulation of the needs, aspirations and rights of the peoples in the South and in promoting just, equitable and ecological development.

[www.twn.my](http://www.twn.my)

Contact at TWN:

Email: [twn@twnetwork.org](mailto:twn@twnetwork.org)

Telephone: 60-4-2266728

60-4-2266159

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